



**U.S. GEOLOGICAL SURVEY-WRD
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Water Resources Data Puerto Rico and the U.S. Virgin Islands Water Year 1993



U.S. GEOLOGICAL SURVEY WATER-DATA REPORT PR-93-1
Prepared in cooperation with the Commonwealth of Puerto Rico,
the Government of the U.S. Virgin Islands and other agencies

CALENDAR FOR WATER YEAR 1993

1992

| OCTOBER | | | | | | | NOVEMBER | | | | | | | DECEMBER | | | | | | |
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1993

| JANUARY | | | | | | | FEBRUARY | | | | | | | MARCH | | | | | | |
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| 4 | 5 | 6 | 7 | 8 | 9 | 10 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 6 | 7 | 8 | 9 | 10 | 11 | 12 |
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| JULY | | | | | | | AUGUST | | | | | | | SEPTEMBER | | | | | | |
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| 11 | 12 | 13 | 14 | 15 | 16 | 17 | 15 | 16 | 17 | 18 | 19 | 20 | 21 | 12 | 13 | 14 | 15 | 16 | 17 | 18 |
| 18 | 19 | 20 | 21 | 22 | 23 | 24 | 22 | 23 | 24 | 25 | 26 | 27 | 28 | 19 | 20 | 21 | 22 | 23 | 24 | 25 |
| 25 | 26 | 27 | 28 | 29 | 30 | 31 | 29 | 30 | 31 | | | | | 26 | 27 | 28 | 29 | 30 | | |



Water Resources Data Puerto Rico and the U.S. Virgin Islands Water Year 1993

by P.L. Díaz, Z. Aquino, C. Figueroa-Alamo, R.J. Vachier, and
A.V. Sánchez



U.S. DEPARTMENT OF THE INTERIOR
BRUCE BABBITT, Secretary

U.S. GEOLOGICAL SURVEY
Gordon P. Eaton, Director

PREFACE

This annual hydrologic data report of Puerto Rico and the U.S. Virgin Islands is one of a series of annual reports that document hydrologic data gathered from the U.S. Geological Survey's surface- and ground-water data-collection networks in each state, Puerto Rico, the U.S. Virgin Islands, and the other Trust Territories. These records of streamflow, ground-water levels, and quality of water provide the hydrologic information needed by state, local and Federal agencies, and the private sector for developing and managing our Nation's land and water resources.

The report is the culmination of a concerted effort by dedicated personnel of the U.S. Geological Survey, Water Resources Division who collected, compiled, analyzed, verified, and organized the data, and who typed, edited, and assembled the report. In addition to the authors, who had primary responsibility for assuring that the information contained herein is accurate, complete and adheres to Geological Survey policy and established guidelines, the following personnel contributed significantly to the collection, processing and tabulations of the data:

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This report was prepared in cooperation with agencies of the Commonwealth of Puerto Rico, the Government of the U.S. Virgin Islands, and with other federal agencies under the general supervision of Allen L. Zack, District Chief, Caribbean District, San Juan, Puerto Rico.

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**SURFACE-WATER AND WATER-QUALITY STATIONS, IN DOWNSTREAM ORDER,
FOR WHICH RECORDS ARE PUBLISHED IN THIS VOLUME**

VII

(Letter after station name designates type of data:
(d) discharge, (c) chemical, (b) biological, (s) sediment, (p) pesticide, (e) elevation, gage heights)

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FOR WHICH RECORDS ARE PUBLISHED IN THIS VOLUME--Continued**

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**X SURFACE-WATER AND WATER-QUALITY STATIONS, IN DOWNSTREAM ORDER,
FOR WHICH RECORDS ARE PUBLISHED IN THIS VOLUME--Continued**

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**U.S. Geological Survey
Water Resources Division
Caribbean District**

ERRATA

**WATER RESOURCES DATA - PUERTO RICO AND THE U.S. VIRGIN ISLANDS,
WATER YEAR 1993**

1. The period of record for pages 75, 102, 144, 221, 246, 263, 303, 304, and 319 containing water-quality data, should read:

WATER-QUALITY DATA, WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993

2. Substitute data on pages 412 and 413 with new data provided on the page accompanying this errata.
3. The heading for pages 445 through 448 should read:

**ANALYSES OF SAMPLES COLLECTED AT WATER-QUALITY PARTIAL-RECORD STATIONS
WATER-QUALITY DATA, WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993**

4. Sediment data for water year 1993 for stations 50055170 Río Caguitas near Caguas and 50057000 Río Gurabo at Gurabo, which were not available for publication in this volume, can be obtained through the Caribbean District office. These data will be published in the water year 1994 Data Report. For information call (809) 749-4346.

The new address of the U.S. Geological Survey, Caribbean District is:

**Mailing: GSA CENTER
651 FEDERAL DRIVE
SUITE 400-15
GUAYNABO, P.R. 00965**

**Physical: GSA CENTER
HIGHWAY 28, KM 7.2
BLDG. 651, SUITE 400
GUAYNABO, P.R.**

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| Well 180547067084800 Local number CR-TW-8 | 504 |
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| Well 174308064484400 Local number 6 | 532 |
| Well 174525064460600 Local number 7 | 533 |
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DISCONTINUED STREAMFLOW STATIONS

The following continuous-record streamflow stations in Puerto Rico and the U.S. Virgin Islands have been discontinued or converted to partial-record stations. Daily streamflow or stage records were collected for the period of record shown for each station.

| Station number | Station name | Drainage area (mi ²) | Period of record |
|----------------|---|----------------------------------|---|
| 50007000 | Quebrada de los Cedros near Isabela | 6.91 | 1970 |
| 50010600 | Río Guajataca above Lago de Guajataca | -- | 1984-89 |
| 50011000 | Canal Diversion Lago Guajataca | -- | 1970 |
| 50011200 | Río Guajataca below Lago Guajataca | -- | 1969-70, 1984-87 |
| 50011400 | Río Guajataca above mouth near Quebradillas | -- | 1969-70, 1984-89 |
| 50013000 | Río Camuy near Lares | 7.62 | 1969-71 |
| 50014000 | Río Criminales near Lares | 4.68 | 1969-70 |
| 50016000 | Río Camuy near Camuy | -- | 1969-73 |
| 50021000 | Río Pellejas at Central Pellejas | 5.46 | 1968-70 |
| 50021050 | Río Pellejas below Central Pellejas | 7.89 | 1972-75 |
| 50021500 | Río Pellejas near Utuado | 9.55 | 1969-71 |
| 50023000 | Río Viví near Central Pellejas | 5.66 | 1969-75 |
| 50027200 | Río Grande de Arecibo blw. Lago dos Bocas | 169 | 1970-71 |
| 50029000 | Río Grande de Arecibo at Central Cambalache | 200 | 1969-83 |
| 50031500 | Río Sana Muerto near Orocovis | 3.68 | 1965-70 |
| 50035200 | Río Grande de Manatí at Hwy 145 at Ciales | 132 | 1972 |
| 50035950 | Río Cialitos at Hwy 649 at Ciales | 17 | 1970-82 |
| 50038360 | Río Mavilla near Corozal | 9.51 | 1969-70 |
| 50038600 | Río Unibón near Morovis | 5.29 | 1969-70 |
| 50038700 | Río Morovis at Morovis | 1.26 | 1968 |
| 50038900 | Río Indio at Vega Baja | -- | 1963,66,71 |
| 50039600 | Río Cibuco at Central San Vicente | -- | 1969-72 |
| 50043200 | Río Usabon near Barranquitas | 9.15 | 1968-69,71 |
| 50043400 | Río Aibonito Tributary near Aibonito | 1.13 | 1968-71 |
| 50044600 | Río Guadiana near Naranjito | 1.73 | 1971 |
| 50044650 | Quebrada del Toro near Naranjito | 0.54 | 1971 |
| 50044800 | Quebrada Anones near Naranjito | 2.32 | 1971 |
| 50045700 | Río Lajas at Toa Alta | 8.65 | 1966-75 |
| 50047820 | Río de Bayamón at Hwy 174 near Bayamón | 31.90 | 1966 |
| 50048000 | Río de Bayamón at Bayamón | 71.90 | 1963-67 |
| 50049310 | Quebrada Josefina at Piñero Avenue | 3.84 | 1988-91 |
| 50053050 | Río Turabo at Borinquen | 7.89 | 1984-90 |
| 50054000 | Quebrada de las Quebradillas near Caguas | 6.25 | 1969-71,73 |
| 50055650 | Quebrada Caimito near Juncos | 0.82 | 1984-87 |
| 50056000 | Río Valencianc near Las Piedras | 6.85 | 1971 |
| 50056900 | Quebrada Mamey near Gurabo | 2.30 | 1984-92 |
| 50058300 | Quebrada Arena near Caguas | -- | 1971 |
| 50061300 | Río Canovanillas near Loíza | 14.40 | 1968-73 |
| 50062500 | Río Herrera near Colonia Dolores | 2.75 | 1968-72 |
| 50063300 | Río Espíritu Santo near El Verde | 2.23 | 1968-73 |
| 50065700 | Río Mameyes at Hwy 191 at Mameyes | 11.80 | 1967-85 |
| 50072000 | Río Fajardo at Fajardo | 21.60 | 1960-63 |
| 50073200 | Río Dagua at Dagua | 2.26 | 1966-82 |
| 50073400 | Quebrada Palma at Dagua | 4.84 | 1972-77 |
| 50074000 | Río Santiago at Naguabo | 4.99 | 1966-82 |
| 50075500 | Río Blanco at Florida | 11.00 | 1966-82 |
| 50076000 | Río Blanco near Florida | 12.30 | 1983-85 |
| 50077000 | Río Blanco at Río Blanco | 17.60 | 1973-77 |
| 50077400 | Río Blanco at Colonia La Fe | 18.80 | 1967-70 |
| 50078500 | Río Anton Ruiz at Central Pasto Viejo | 4.33 | 1968 |
| 50081500 | Río Humacao near Humacao | 9.23 | 1973 |
| 50082000 | Río Humacao at Hwy 3 at Humacao | 17.30 | 1983-85 |
| 50082200 | Río Humacao near La Suiza | 19.90 | 1965-66, 1969-71 |
| 50082800 | Río Guayanés near Colonia Laura | 4.69 | 1969-82 |
| 50083500 | Río Guayanés near Yabucoa | 17.20 | 1969-71 |
| 50084000 | Río Limones near Yabucoa | 7.89 | 1969-71 |
| 50085100 | Río Guayanés at Central Roig | 26.60 | 1965-66, 1968,70, 1965-66, 1968-69 |
| 50086100 | Río del Ingenio at Comunas | 5.50 | 1965-66, 1968-69 |
| 50086500 | Río Guayanés at Playa Guayanés | 34.00 | 1965-66, 1968-71 |
| 50087200 | Caño Santiago near Central Roig | 6.04 | 1965-71 |

WATER RESOURCES DATA FOR PUERTO RICO AND THE U.S. VIRGIN ISLANDS, 1993

DISCONTINUED STREAMFLOW STATIONS--Continued

| Station number | Station name | Drainage area (mi ²) | Period of record |
|----------------|---|----------------------------------|---------------------------|
| 50091000 | Río Maunabo at Maunabo | 12.40 | 1965, 67, 1969-82 |
| 50091200 | Río Maunabo near Maunabo | 12.70 | 1971-72 |
| 50091400 | Río Jacabo near Lamboglia | 4.13 | 1965-73 |
| 50091700 | Río Chico at Patillas | 6.82 | 1965, 1969-72 |
| 50091800 | Río Chico at Providencia | 4.90 | 1965, 1967-69, 1971 |
| 50094200 | Río Grande de Patillas at Patillas | 27.90 | 1967, 1969, 1971 |
| 50094300 | Río Grande de Patillas at Providencia | 29.00 | 1971 |
| 50094400 | Río Nigua at Pitahaya | 5.86 | 1965, 1969, 1970-71, 1973 |
| 50095200 | Río Guamaní at Guayama | 8.22 | 1969-71 |
| 50095500 | Río Guamaní near Guayama | 12.30 | 1969-70 |
| 50099000 | Quebrada Aguas Verdes near Salinas | 0.39 | 1989 |
| 50106500 | Río Coamo near Coamo | 46.00 | 1967-68, 1984-85, 1986 |
| 50106900 | Río Coamo below Lago Coamo near Coamo | 65.40 | 1967-68 |
| 50107200 | Río Coamo at mouth near Santa Isabel | 69.30 | 1967-68 |
| 50108200 | Río Descalabrado at Las Ollas | 13.90 | 1965, 1967-71 |
| 50108500 | Río Descalabrado near Santa Isabel | 18.10 | 1966-67 |
| 50111200 | Río Toa Vaca near Villalba | 21.40 | 1966-70 |
| 50111700 | Río Jacaguas near Juana Díaz | 53.20 | 1966-68 |
| 50111750 | Río Jacaguas below Quebrada Guanábana | 56.30 | 1989 |
| 50112100 | Río Jacaguas near Arús | 59.60 | 1966-67 |
| 50112600 | Río Inabón at Coto Laurel | -- | 1967-71 |
| 50113100 | Río Guayo near Coto Laurel | 11.80 | 1965, 1968-71 |
| 50113500 | Río Inabón near Arús | 30.20 | 1964-65 |
| 50114400 | Río Bucaná near Ponce | 25.60 | 1965-81 |
| 50114700 | Río Bucaná near Playa de Ponce | 28.40 | 1964-67 |
| 50115900 | Río Portugués at Hwy 14 at Ponce | -- | 1965-82 |
| 50116500 | Río Portugués at Highway 2 Bypass at Ponce | 20.50 | 1964-65 |
| 50119000 | Río Matilde at Ponce | 19.40 | 1965-66 |
| 50121000 | Río Tallaboa at Peñuelas | 24.20 | 1959-82 |
| 50122000 | Río Tallaboa at Tallaboa | 31.50 | 1959-63 |
| 50124000 | Río Guayanilla nr Guayanilla | 18.50 | 1961-69 |
| 50124500 | Río Guayanilla at Guayanilla | 20.80 | 1971-82 |
| 50125900 | Río Duey above Diversion near Yauco | 8.93 | 1977-80 |
| 50126150 | Río Yauco above Diversion Monserrate near Yauco | 27.20 | 1978-85 |
| 50128000 | Río Yauco near Yauco | 45.50 | 1962-64, 1977-85 |
| 50129000 | Río Loco near Yauco | 8.50 | 1963-67 |
| 50129500 | Río Loco near Guánica | 21.00 | 1963-69 |
| 50129900 | Laguna Cartagena near Boquerón | -- | 1984-86 |
| 50130320 | Quebrada Mamey at Joyuda | 0.38 | 1986-88 |
| 50136000 | Río Rosario at Rosario | 16.40 | 1975-86 |
| 50141000 | Río Yahuecas near Adjuntas | 15.40 | 1980-85 |
| 50145000 | Río Grande de Añasco at El Espino | 108.00 | 1959-66, 1961-63 |
| 50147000 | Río Culebrinas at San Sebastian | 16.70 | 1960-82 |
| 50276000 | Turpentine Run at Mariendal | 2.97 | 1963-69, 1978-86 |

INTRODUCTION

The Water Resources Division of the U.S. Geological Survey, in cooperation with local and federal agencies obtains a large amount of data pertaining to the water resources of the Commonwealth of Puerto Rico and the Territory of the U.S. Virgin Islands each water year. These data, accumulated during many water years, constitute a valuable data base for developing an improved understanding of the water resources of the area. To make these data readily available to interested parties outside the Geological Survey, the data are published annually in this report series entitled "Water Resources Data for Puerto Rico and the U.S. Virgin Islands, 1993."

This report includes records on both surface and ground water. Specifically, it contains: (1) Discharge records for 81 streamflow-gaging stations, stage only for 12 gaging stations, daily sediment records for 21 streamflow stations, 112 partial-record or miscellaneous streamflow stations, stage records for 11 reservoirs, and (2) water-quality records for 16 streamflow-gaging stations, and for 42 ungaged streamsites, 11 lake sites, 2 lagoons, and 1 bay; and (3) water-level records for 86 observation wells.

Water-resources data for Puerto Rico for calendar years 1958-67 were released in a series of reports entitled "Water Records of Puerto Rico". Water-resources data for the U.S. Virgin Islands for the calendar years 1962-69 were released in a report entitled "Water Records of U.S. Virgin Islands." Included were records of streamflow, ground-water levels, and water-quality data for both surface and ground water.

Beginning with the 1968 calendar year, surface-water records for Puerto Rico were released separately on an annual basis. Ground-water level records and water-quality data for surface and ground water were released in companion reports covering periods of several years. Data for the 1973-74 reports were published under separate covers. Water-resources data reports for 1975-76, 1977, 1978, 1979-80, 1981-82, 1983, 1984, 1985, 1986, 1987, 1988, 1989, 1990, 1991 and 1992 water years consist of one volume each and contain data for streamflow, water quality and ground water.

Publications similar to this report are published annually by the Geological Survey for all States. These official Survey reports have an identification number consisting of the two-letter State abbreviation, the last two digits of the water year, and the volume number. For example, this volume is identified as "U.S. Geological Survey Water-Data Report PR-93-1". These water-data reports are for sale in paper copy or in microfiche by the National Technical Information Service, U.S. Department of Commerce, Springfield, Virginia, 22161. Beginning with the 1990 water year, all water-data reports will also be available on Compact Disc-Read Only Memory (CD-ROM). All data reports published for the current water year for the entire Nation, including Puerto Rico and the Trust Territories, will be reproduced on a single CD-ROM disc.

Additional information, including current prices, for ordering specific reports may be obtained from the District Chief at the address given on back of the title page or by telephone (809) 749-4346. A limited number of CD-ROM discs will be available for sale by the Books and Open-File Reports Section, U.S. Geological Survey, Federal Center, Box 25425, Denver, Colorado 80225.

COOPERATION

The U.S. Geological Survey has had cooperative agreements with organizations of the Commonwealth of Puerto Rico and the Territory of the U.S. Virgin Islands for the systematic collections of water resources data since 1958. Organizations that supplied data are acknowledged in the station descriptions. Organizations that assisted in collecting data through cooperative agreements with the Survey are:

Puerto Rico Environmental Quality Board
Puerto Rico Aqueduct and Sewer Authority
Puerto Rico Department of Agriculture
Puerto Rico Industrial Development Company
Puerto Rico Department of Housing
Puerto Rico Highway Authority
Puerto Rico Department of Natural Resources
Puerto Rico Department of Health
Puerto Rico Electric and Power Authority
Puerto Rico Legislature
Puerto Rico Civil Defense
Water Resources Research Institute, College of the Virgin Islands
U.S. Virgin Islands Water and Power Authority

Funds were also provided by the Corps of Engineers, U.S. Army, for the collection of records at seven gaging stations published in this report.

SUMMARY OF HYDROLOGIC CONDITIONS

Precipitation

Precipitation throughout Puerto Rico during the 1993 water year (October 1992 to September 1993) averaged about 103 percent of normal. However, precipitation was 98 percent of normal in northern Puerto Rico, 106 percent of normal in southern Puerto Rico, 105 percent of normal in eastern Puerto Rico, and 105 percent of normal in western Puerto Rico. Monthly average precipitation islandwide for the 1993 water year and for the 30-year reference period 1951-1980 used to define normal rainfall, as reported by the National Oceanic and Atmospheric Administration, are listed in table 1.

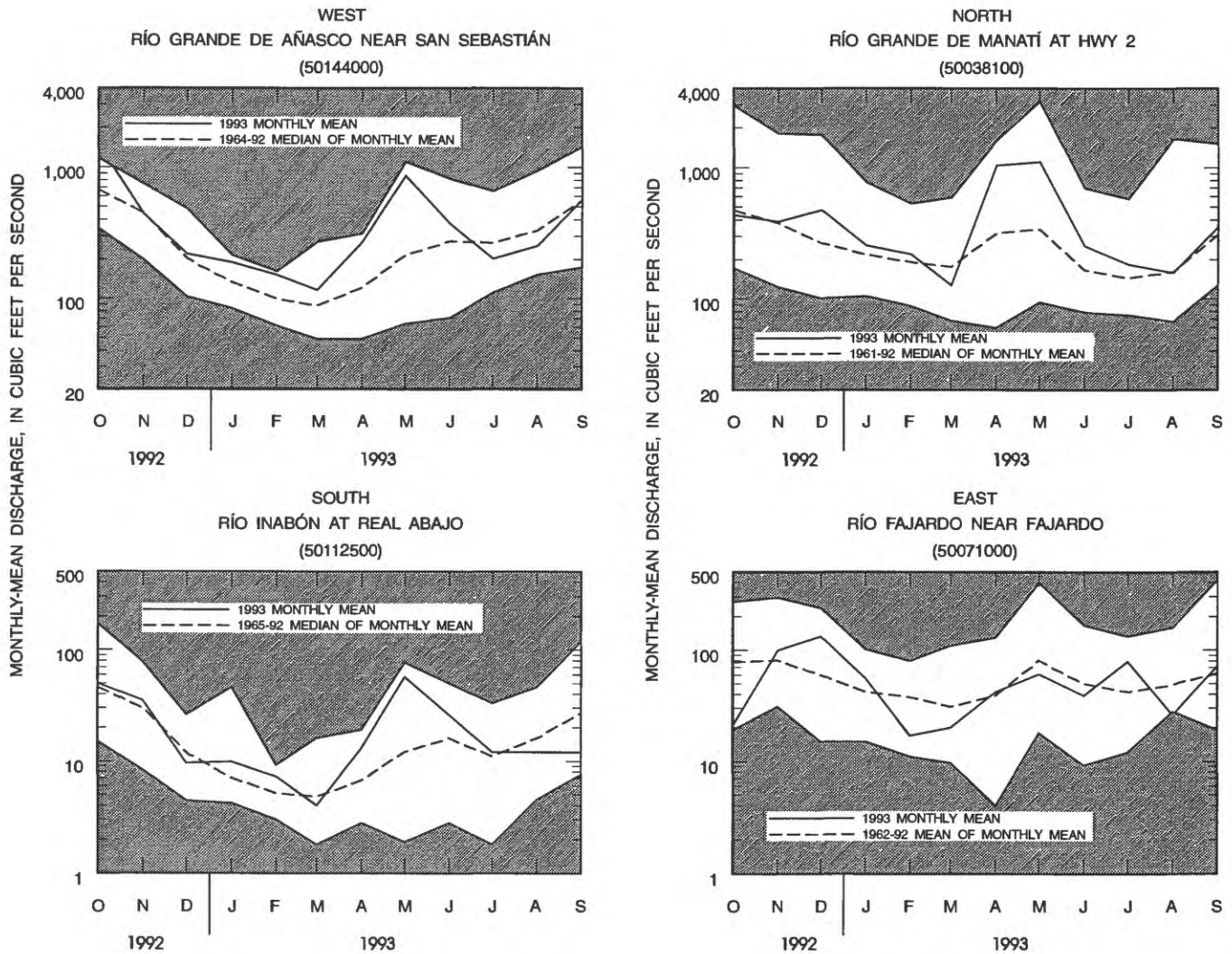
Table 1. Islandwide monthly precipitation and annual averages for the 1993 water year and the 30-year reference period, 1951-80

| Month | 1993 Water Year (inches) | 30-year normal (inches) |
|-------|-----------------------------|----------------------------|
| OCT | 6.40 | 7.74 |
| NOV | 8.94 | 5.95 |
| DEC | 5.23 | 4.32 |
| JAN | 3.91 | 3.08 |
| FEB | 1.92 | 2.35 |
| MAR | 2.03 | 2.62 |
| APR | 6.76 | 4.63 |
| MAY | 8.02 | 6.48 |
| JUN | 5.36 | 5.58 |
| JUL | 5.91 | 5.48 |
| AUG | 4.23 | 7.28 |
| SEP | 6.51 | 7.78 |
| TOTAL | 65.22 | 63.29 |

Surface Water

Streamflow at the four index stations in Puerto Rico generally was above normal during water year 1993 although no significant floods occurred during the year. Figure 1 compares monthly-mean flows at the four index stations on the Río Grande de Añasco, the Río Grande de Manatí, the Río Inabón, and the Río Fajardo during water year 1993 with the long-term median of monthly-mean flows. Maximum and minimum monthly flows for each of these index stations for the period of record are also shown in figure 1.

In the western area, the Río Grande de Añasco near San Sebastián had monthly-mean flows that exceeded the long-term median of monthly-mean flow every month except July and August which had monthly-mean flows of 76 and 77 percent of the long-term median.



Unshaded area indicates range between highest and lowest monthly mean discharges for the period of record prior to water year 1993.

Figure 1.--Monthly mean discharge of selected streams in Puerto Rico.

In the northern area, streamflow at the index station on the Río Grande de Manatí at Highway 2, was above normal during much of the year and the monthly-mean flow in April and May were 325 and 322 percent of the long-term median of monthly-mean flows. Monthly-mean flows were below the long-term median of monthly-mean flows in October, March, and August with 72 to 98 percent of the long-term median.

In the southern area, monthly-mean flow at the Río Inabón at Real Abajo index station was above the long-term median of monthly-mean flow most of the water year 1993. During May the monthly-mean flow at this site was 475 percent of the long-term median. Only during December, August, and September were monthly-mean flows below the long-term median of monthly-mean flows.

In the eastern area, streamflow at the Río Fajardo near Fajardo index station, was above the long-term median of monthly-mean flow during November, December, January, and July, but was below the long-term median during much of the year. At the beginning of water year 1993, monthly-mean flow in the Río Fajardo was only 27 percent of the long-term median of monthly-mean flow. From November to January monthly-mean flows ranged from 122 to 330 percent of the long-term median. In February and March streamflow declined seasonally and monthly-mean flows were below normal. In August, the monthly-mean flow at this station was the lowest of record.

Ground-Water Levels

Ground-water levels in the major aquifers of Puerto Rico followed a seasonal trend associated with rainfall patterns during water year 1993. Water levels generally rose as significant rainfall events recharged the coastal aquifers. Record-high water levels were recorded at several wells in Puerto Rico and the U.S. Virgin Islands (table 2).

Ground-water levels in the north coast limestone aquifer, at the Sabana Hoyos index well (fig. 2) rose from November to early January 1993. Water levels in this well then declined until late April, when above normal rainfall reversed the trend. Water levels were relatively stable from mid-May until early August, but declined gradually during late August and September.

Ground-water levels in the south coast alluvial aquifer at the Alomar index well (fig. 2) were relatively stable during October and November 1992, but declined about 3.4 feet, from December 1992 to April 1993. Water levels rose about a foot in this well during May as a result of above normal rainfall along the south coast, but remained relatively stable from June to September 1993, except for fluctuations, due to ground-water withdrawals for public, irrigation, and industrial uses. Water levels in this well were about 2 feet lower at the end of the water year than at the start of the water year.

Ground water in observation well 11 at Guinea Gut, St. John in U.S. Virgin Islands rose sharply in response to rainfall events during November and December 1992 and January, February, and June 1993 (fig. 2). From February to mid-June 1993 the water levels in Guinea Gut well declined about 12.5 feet in response to below normal rainfall in the area.

WATER RESOURCES DATA FOR PUERTO RICO AND THE U.S. VIRGIN ISLANDS, 1993

Table 2. Highest ground-water levels recorded during 1993 water year and previous high ground-water levels at selected wells in Puerto Rico and the U.S. Virgin Islands.

[PR, Puerto Rico; St.T, St. Thomas; St.J, St. John; mm-dd-yy, month-day-year; ft-blnd, feet below land-surface datum; mm-yy, month-year; +, above land-surface datum]

| Well name or number | Local number | Location | 1993 highest water level (ft-blnd) | Date (mm-dd-yy) | Previous highest water level (ft-blnd) | Date (mm-dd-yy) | Period of record (mm-yy) |
|---------------------|--------------|----------|------------------------------------|--|--|----------------------------------|--------------------------|
| Salto 1 | 165 | PR | 38.40 | 07-12-93 | 38.75 | 09-23-92 09-26-92 | 1-82 to 9-93 |
| La Esperanza 2 | PN-2 | PR | 8.01 | 12-30-92 12-31-92 | 8.07 | 06-08-92 06-09-92 06-10-92 | 6-89 to 9-93 |
| Salud Mental 5 | PN-5 | PR | 25.37 | 02-05-93 | 26.20 | 11-21-89 11-22-89 | 4-89 to 9-93 |
| Las Américas 10 | PN-10 | PR | +2.30 | 01-09-93 01-10-93 01-11-93 01-12-93 | +2.04 | 10-22-90 | 10-89 to 9-93 |
| Jardín Botánico 3 | PN-19 | PR | 3.35 | 12-30-92 | 4.04 | 06-09-92 | 6-91 to 9-93 |
| CJ-TW 19A | CJ-TW 19A | PR | 22.78 | 07-27-93 | 23.78 | 11-16-91 | 9-91 to 9-93 |
| CR-TW-1 | CR-TW-1 | PR | +4.75 | 10-12-92 | +3.11 | 09-08-92 | 7-92 to 9-93 |
| CR-TW-2A | CR-TW-2A | PR | +4.00 | 10-12-92 | +2.06 | 09-15-92 | 7-92 to 9-93 |
| CR-TW-2B | CR-TW-2B | PR | +4.34 | 10-10-92 | +2.71 | 09-08-92 | 6-92 to 9-93 |
| CR-TW-2C | CR-TW-2C | PR | +3.94 | 10-10-92 | +1.96 | 09-15-92 | 6-92 to 9-93 |
| CR-TW-3 | CR-TW-3 | PR | +5.40 | 10-11-92 | +4.24 | 09-15-92 | 3-92 to 9-93 |
| CR-TW-4 | CR-TW-4 | PR | 2.99 | 10-12-92 | 3.55 | 09-26-92 | 6-92 to 9-93 |
| CR-TW-5 | CR-TW-5 | PR | 2.12 | 10-12-92 | 3.78 | 09-15-92 | 7-92 to 9-93 |
| CR-TW-6 | CR-TW-6 | PR | 1.44 | 10-12-92 | 4.00 | 09-15-92 | 6-92 to 9-93 |
| CR-TW-7 | CR-TW-7 | PR | 11.15 | 10-12-92 | 14.20 | 09-15-92 | 6-92 to 9-93 |
| CR-TW-8 | CR-TW-8 | PR | 5.60 | 10-05-92 | 7.02 | 09-25-92 | 6-92 to 9-93 |
| CR-TW-9A | CR-TW-9A | PR | +0.24 | 10-12-92 | 1.36 | 09-09-92 | 7-92 to 9-93 |
| CR-TW-10 | CR-TW-10 | PR | 2.98 | 10-12-92 | 5.17 | 09-15-92 | 7-92 to 9-93 |
| VIEO-6 | 8 | St.T | 22.79 | 01-21-93 | 23.27 | 10-14-91 | 10-91 to 9-93 |
| VIEO-4 | 14 | St.J | 9.57 | 01-06-93 01-07-93 | 9.95 | 06-05-92 | 5-91 to 9-93 |

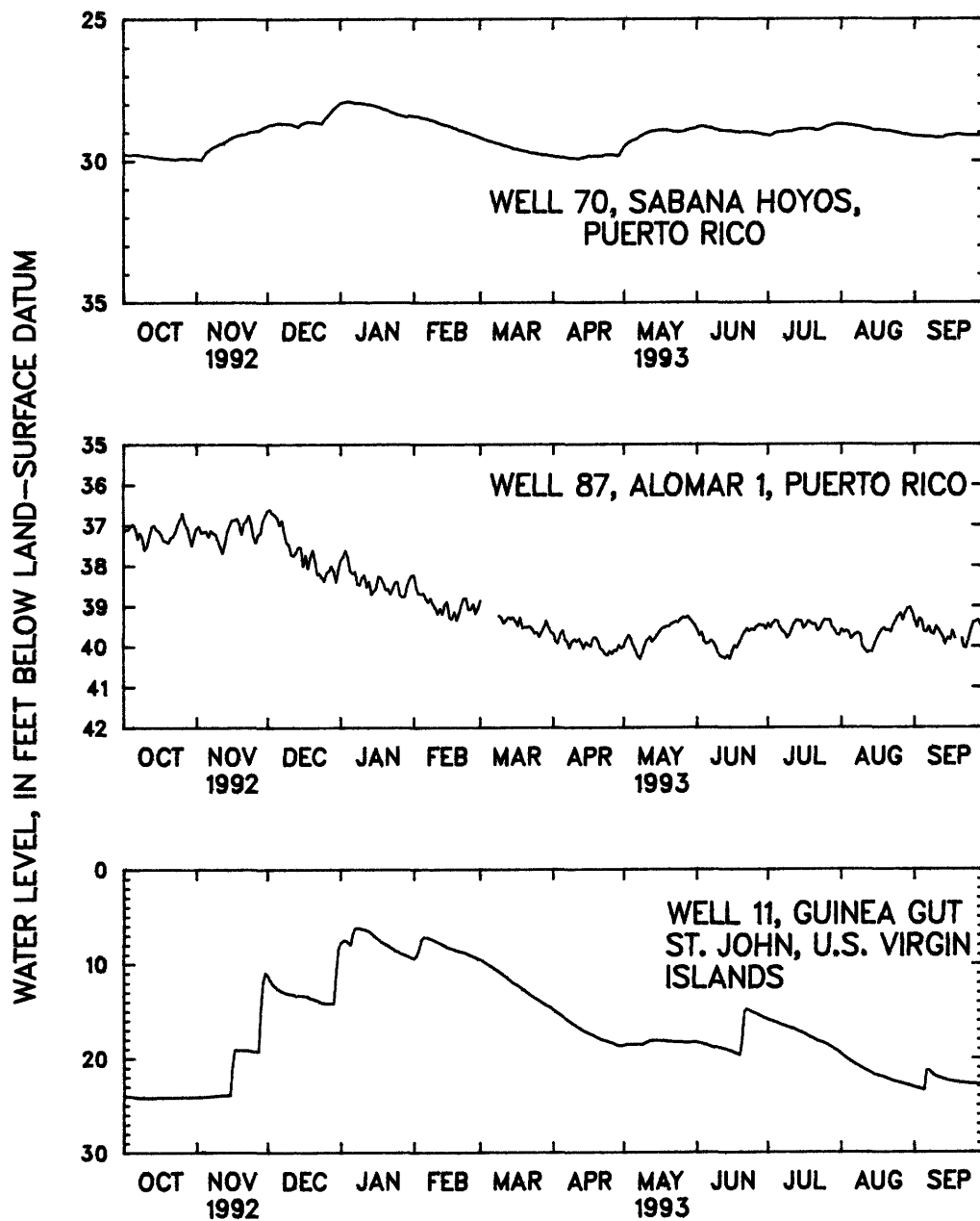


Figure 2.—Ground-water levels at selected wells in Puerto Rico and the U.S. Virgin Islands.

Water Quality

In water year 1993, the U.S. Geological Survey, in cooperation with local government agencies, collected water-quality data at 72 surface-water station in Puerto Rico. The water-quality data collected at these stations included the major chemical constituents and several additional constituents that are listed in table 3. The highest concentration of these additional constituents detected during water year 1993 and the stations which these concentrations were detected are summarized in table 3.

Table 3. Surface-water quality stations in Puerto Rico with highest concentration of selected constituents during water year 1993
[All constituent concentrations are in milligrams per liter; MBAS, Methylene blue active substance]

| Station number | Station name | Constituent | Concentration |
|----------------|--|-------------|---------------|
| 50010500 | Río Guajataca at Lares | Sulfide | 1.6 |
| 50475300 | Río Hondo at Flood Channel near Cataño | Boron | 5.0 |
| 50083500 | Río Guayanés near Yabucoa | Manganese | 1.1 |
| 50116200 | Río Portugués at Ponce | Iron | 21 |
| 50011000 | Canal Diversión at Lago Guajataca | Zinc | .31 |
| 50091800 | Río Chico at Providencia | Cyanide | .03 |
| 50091800 | Río Chico at Providencia | Phenols | .10 |
| 50055250 | Río Caguitas at Highway 30 at Caguas | MBAS | .009 |

The presence of high concentrations of fecal coliform (FC) and fecal streptococci (FS) bacteria continued to be the principal surface-water quality problem in Puerto Rico during water year 1993. A bacteria concentration exceeding one million colonies per hundred milliliters of raw water was determined for a water sample collected at the station on Río Piedras at Río Piedras (50049100). This station is located in the San Juan metropolitan area, which has the highest population concentration in Puerto Rico. In addition to the effluent from the San Juan metropolitan area Río Piedras also receives from the areas in the upper basin sewage treatment plants service in urban and suburban. The main sources of contamination in surface-water systems in Puerto Rico are discharges of liquid wastes from industrial and municipal sources. The highest concentration of fecal coliform and fecal streptococci bacteria in surface waters in Puerto Rico generally were in heavily populated and industrialized areas of the island.

Suspended sediment concentrations were monitored at 19 stations in Puerto Rico during the 1993 water year as part of the cooperative program between the U.S. Geological Survey and various Commonwealth and Federal agencies. High suspended sediment concentrations are a common problem in many streams in Puerto Rico. Most of the streams with high suspended sediment concentration were related to land use, especially construction of urbanizations and roads, agriculture and activities where soil movement was involved. The high suspended sediment concentrations affects the water quality for drinking water and decrease the storage capacities of reservoirs used for water supply.

SPECIAL NETWORKS AND PROGRAMS

Hydrologic Bench-Mark Network is a network of 57 sites in small drainage basins around the country whose purpose is to provide consistent data on the hydrology, including water quality, and related factors in representative undeveloped watersheds nationwide, and to provide analyses on a continuing basis to compare and contrast conditions observed in basins more obviously affected by the activities of man.

National Stream Quality Accounting Network (NASQAN) is a nationwide data-collection network designed by the U.S. Geological Survey to meet many of the information needs of government agencies and other groups involved in natural or regional water-quality planning and management. The 500 or so sites on NASQAN are generally located at the downstream ends of hydrologic accounting units designated by the U.S. Geological Survey Office of Water Data Coordination in consultation with the Water Resources Council. The objectives of NASQAN are (1) to obtain information on the quality and quantity of water moving within and from the United States through a systematic and uniform process of data collection, summarization, analysis, and reporting such that the data may be used for, (2) description of the areal variability of water quality in the Nation's rivers through analysis of data from this and other programs, (3) detection of changes or trends with time in the pattern of occurrence of water-quality characteristics, and (4) providing a nationally consistent data base useful for water-quality assessment and hydrologic research.

The National Trends Network (NTN) is a 150-station network for sampling atmospheric deposition in the United States. The purpose of the network is to determine the variability, both in location and in time, of the composition of atmospheric deposition, which includes snow, rain, dust particles, aerosols, and gases. The core from which the NTN was built was the already-existing deposition-monitoring network of the National Atmospheric Deposition Program (NADP).

The National Water-Quality Assessment (NAWQA) Program of the U.S. Geological Survey is a long-term program with goals to describe the status and trends of water-quality conditions for a large, diverse, and geographically distributed part of the Nation's ground- and surface-water resources, and to identify, describe, and explain the major natural and human factors that affect these observed conditions and trends.

Assessment activities have begun in more than one-third of the study units and ultimately will be conducted in 60 study units (major watersheds and aquifer systems) that represent a wide range of environmental settings nationwide and that account for a large percentage of the Nation's water use. A wide array of chemical constituents will be measured in ground water, surface water, streambed sediments, and fish tissues. The coordinated application of comparative hydrologic studies at a wide range of spatial and temporal scales will provide information for decision making by water-resources managers and a foundation for aggregation and comparison of findings to address water-quality issues of regional and national interest.

Radiochemical Programs is a network of regularly sampled water-quality stations where samples are collected to be analyzed for radioisotopes. The streams that are sampled represent major drainage basins in the conterminous United States.

Tritium Network is a network of stations which has been established to provide baseline information on the occurrence of tritium in the Nation's surface waters. In addition to the surface-water stations in the network, tritium in the Nation's surface waters. In addition to the surface-water stations in the network, tritium data are also obtained at a number of precipitation stations. The purpose of the precipitation stations is to provide an estimate sufficient for hydrologic studies of the tritium input to the United States.

EXPLANATION OF RECORDS

The surface- and ground-water records published in this report are for the 1993 water year that began October 1, 1992 and ended September 30, 1993. A calendar of the water year is provided on the inside of the front cover. The records contain streamflow data, water-quality data for surface and ground water, and ground-water-level data. The locations of the stations and wells where the data were collected are shown in figures 3 to 10. The following sections of the introductory text are presented to provide users with a more detailed explanation of how the hydrologic data published in this report were collected, analyzed, computed, and arranged for presentation.

Station Identification Numbers

Each data station, whether streamsite or well, in this report is assigned a unique identification number. This number is unique in that it applies specifically to a given station and to no other. The number usually is assigned when a station is first established and is retained for that station indefinitely. The systems used by the U.S. Geological Survey to assign identification numbers for surface-water stations and for ground-water well sites differ, but both are based on geographic location. The "downstream order" system is used for regular surface-water stations and the "latitude-longitude" system is used for wells.

Downstream Order System

Since October 1, 1950, the order of listing hydrologic-station records in Survey reports is in a downstream direction along the main stream. All stations on a tributary entering upstream from a main-stream station are listed before that station. A station on a tributary that enters between two main-stream stations is listed between them. A similar order is followed in listing stations in first rank, second rank, and other ranks of tributaries.

As an added means of identification, each hydrologic station and partial-record station has been assigned a station number. These are in the same downstream order used in this report. In assigning station numbers, no distinction is made between partial-record stations and other stations; therefore, the station number for a partial-record station indicates downstream order position in a list made up of both types of stations that may be established; hence, the numbers are not consecutive. The complete 8-digit number for each station such as 50028000, which appears just to the left of the station name, includes the 2-digit part number "50" plus the 6-digit downstream order number "028000."

Latitude-Longitude System

The 8-digit downstream order station numbers are not assigned to wells and miscellaneous sites where only random water-quality samples or discharge measurements are taken.

The well and miscellaneous site numbering system of the U.S. Geological Survey is based on the grid system of latitude and longitude. The system provides the geographic location of the well or miscellaneous site and a unique number for each site. The number consists of 15 digits. The first 6 digits denote the degrees, minutes, and seconds of latitude, the next 7 digits denote degrees, minutes, and seconds of longitude, and the last 2 digits (assigned sequentially) identify the wells or other sites within a 1-second grid. The numbers shown in the grid correspond to the local numbers assigned to each well as visited in the field. An example is well 16 (fig. 12).

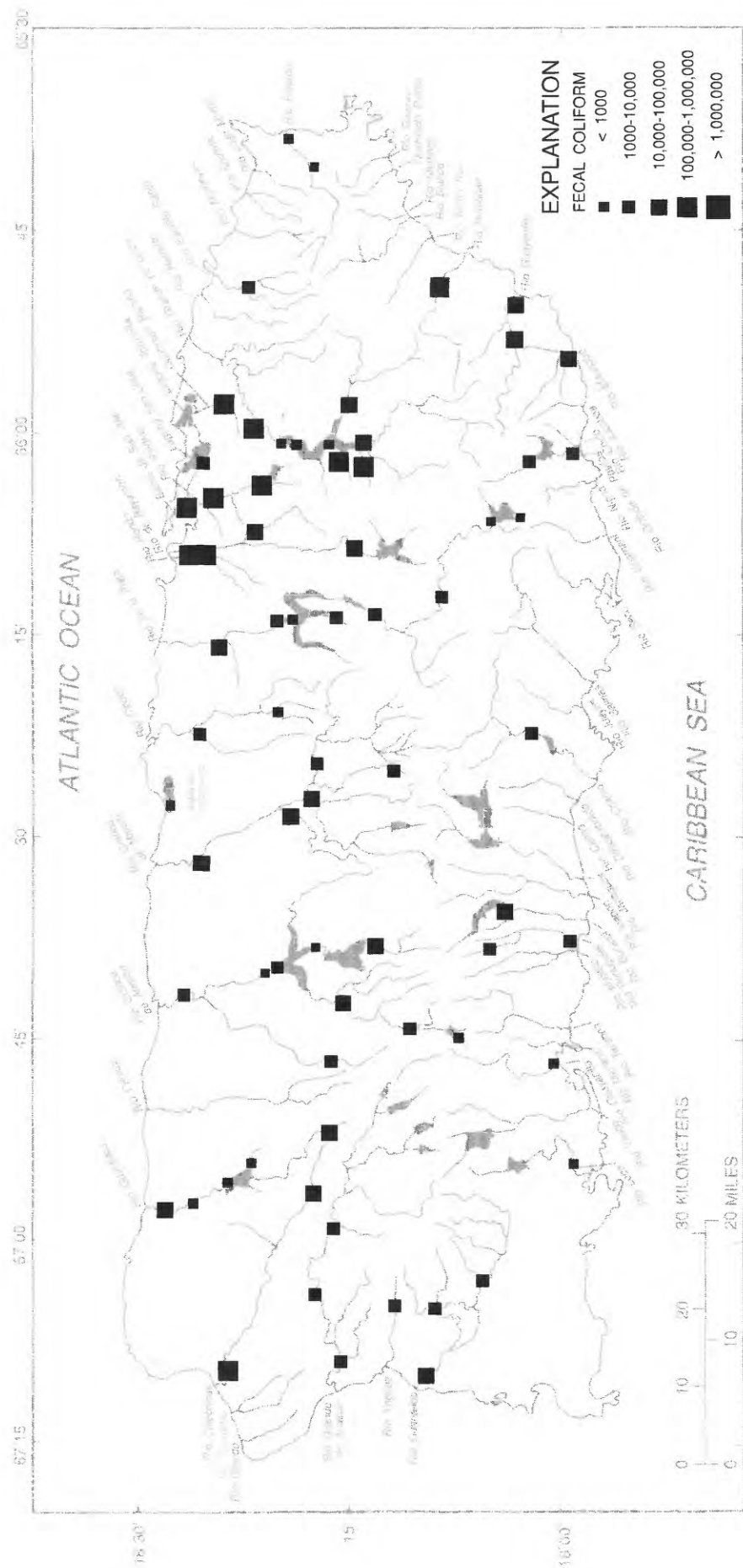


Figure 3.--Location of fecal coliform bacteria concentration at sampled sites.

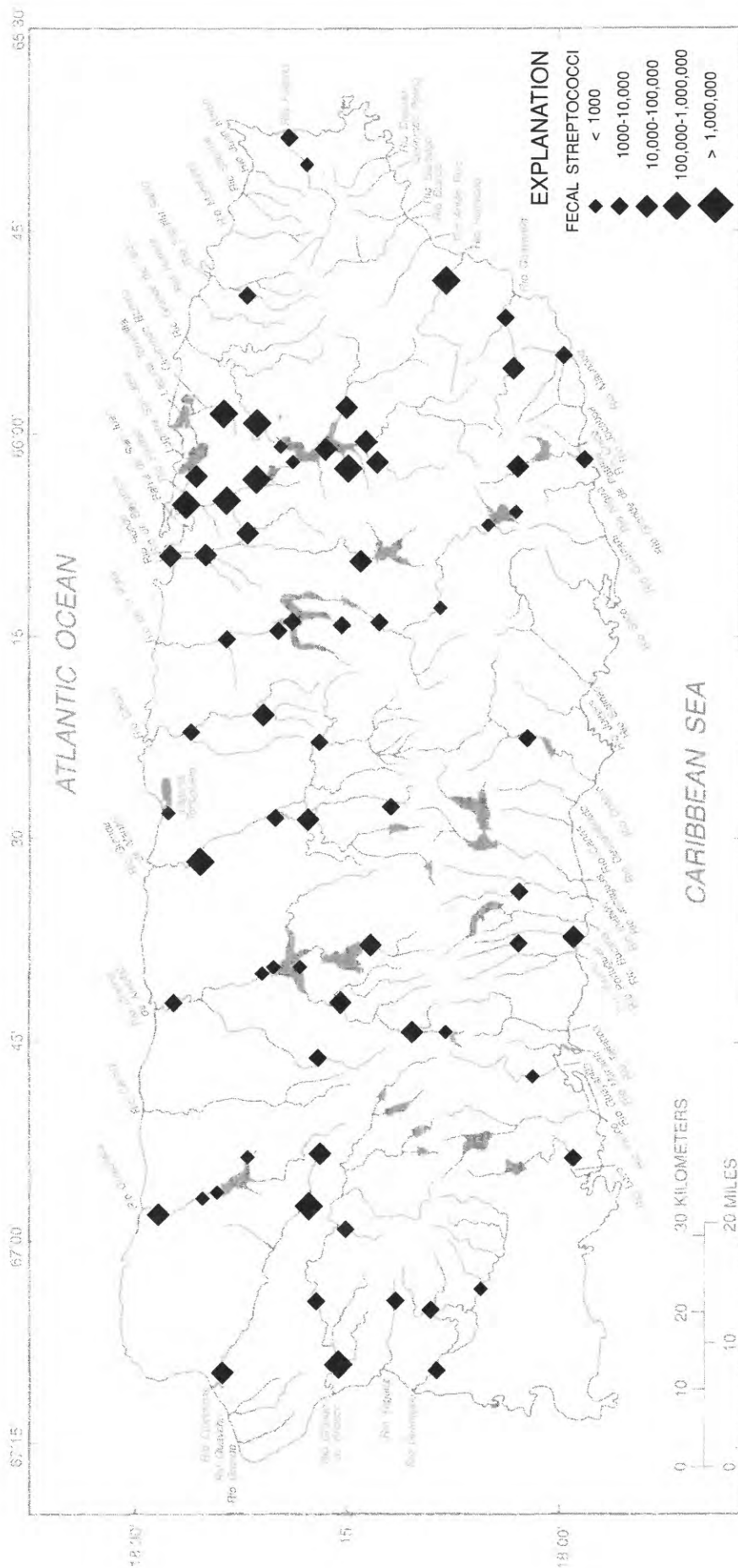


Figure 4.--Location of fecal streptococci bacteria concentration at sampled sites.

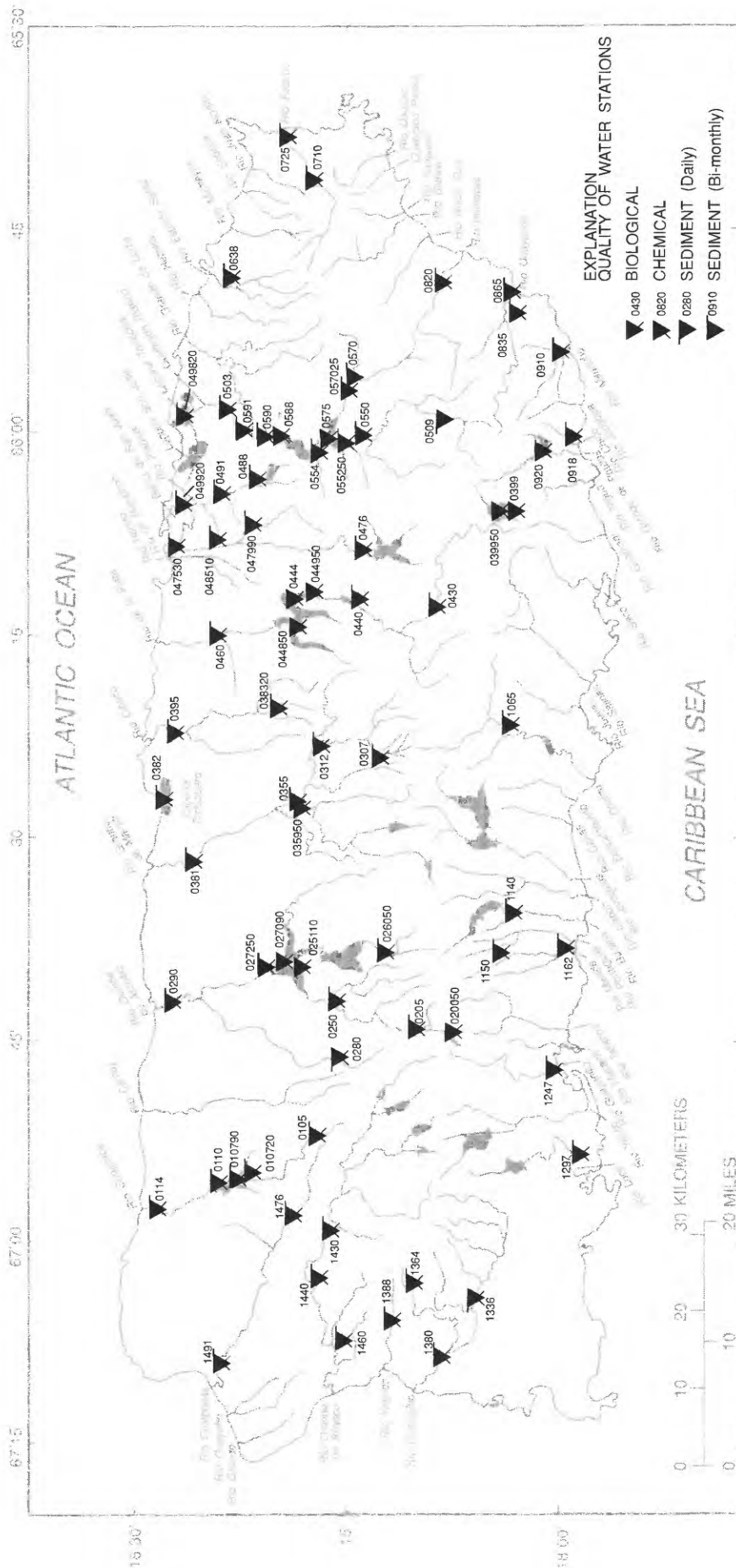


Figure 6.--Location of water-quality stations in Puerto Rico.

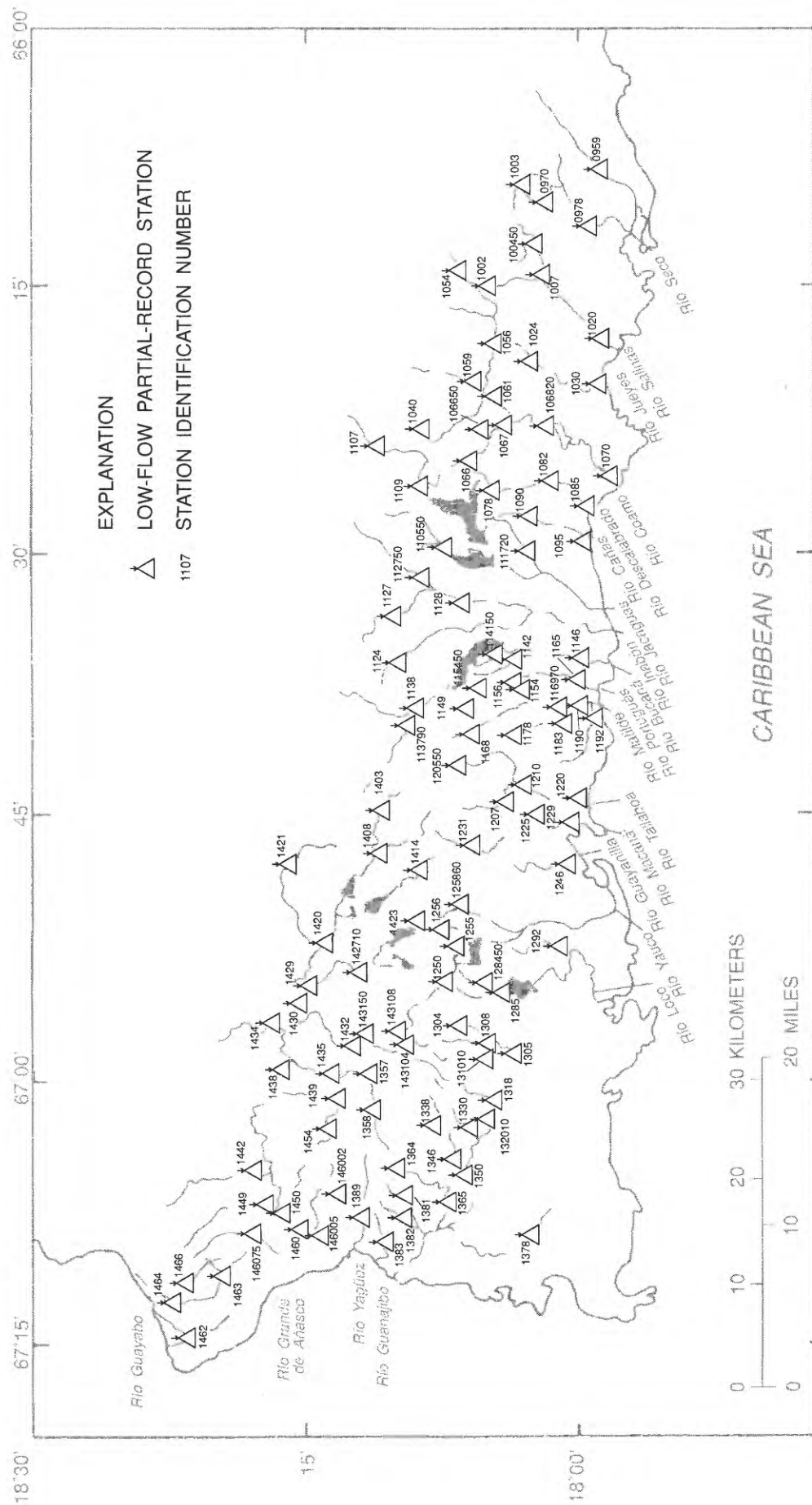


Figure 7.--Location of low-flow partial-record stations in southwest Puerto Rico.

Figure 8.--Location of ground-water stations in Puerto Rico.

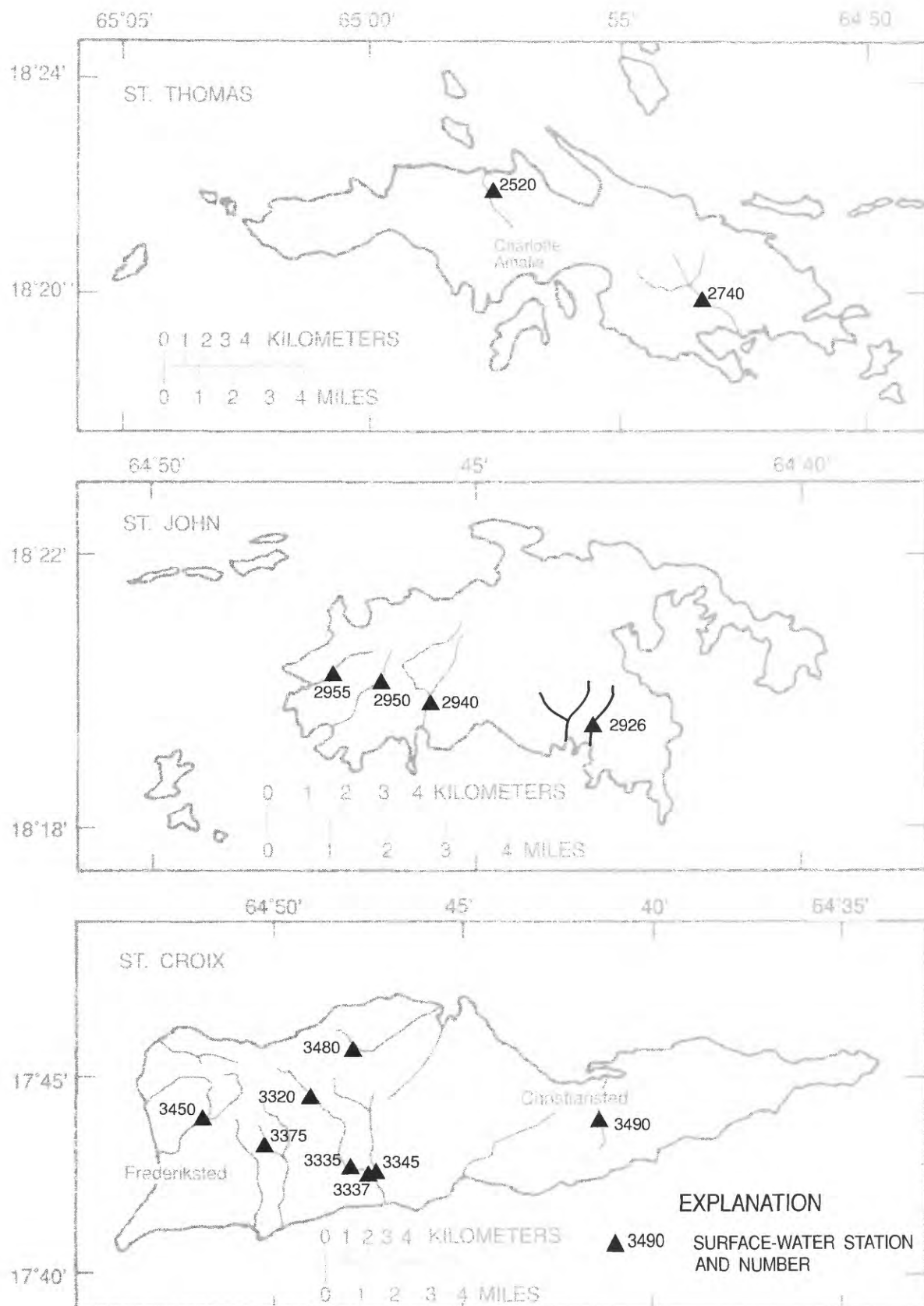


Figure 9.--Location of surface-water stations in the U.S. Virgin Islands.

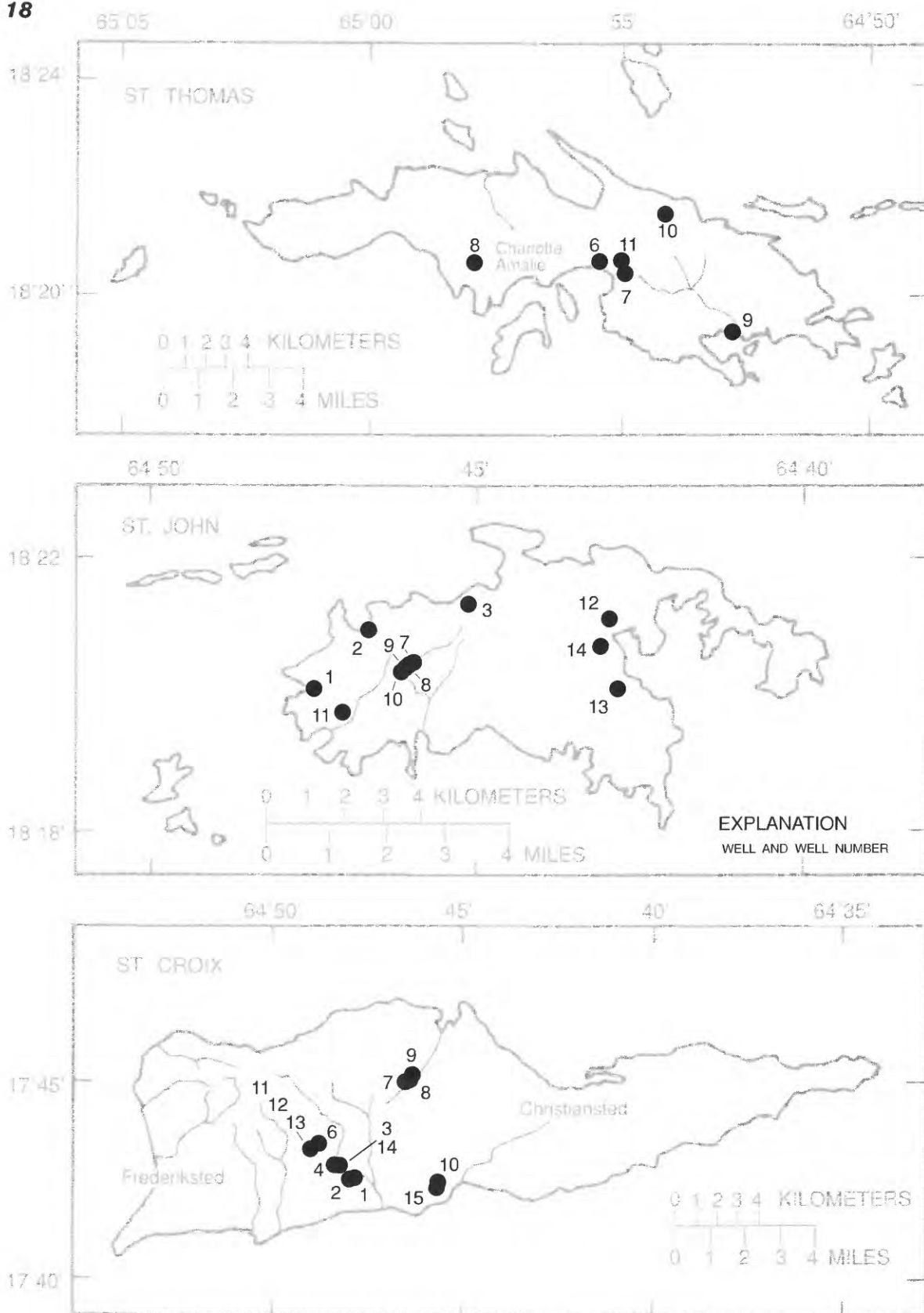


Figure 10.--Location of ground-water stations in the U.S. Virgin Islands.

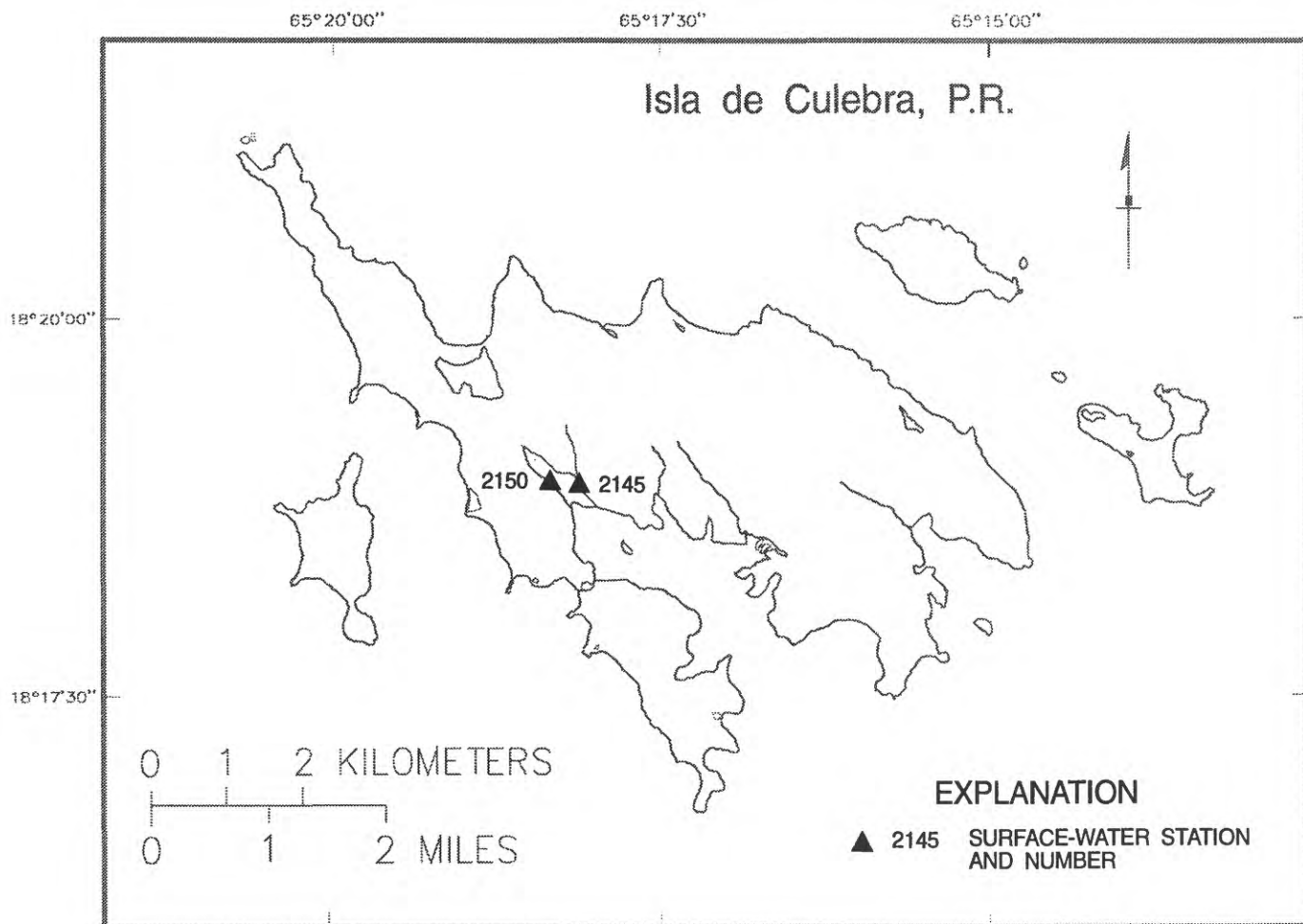
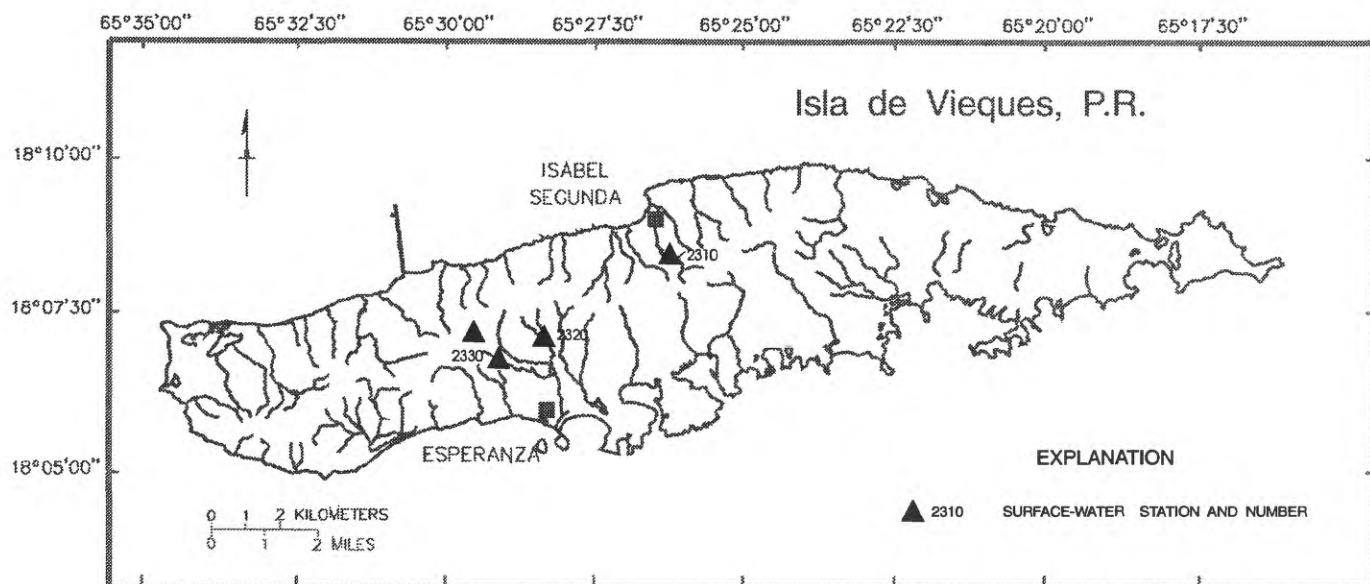


Figure 11.--Location of surface-water stations in Vieques and Culebra Islands.

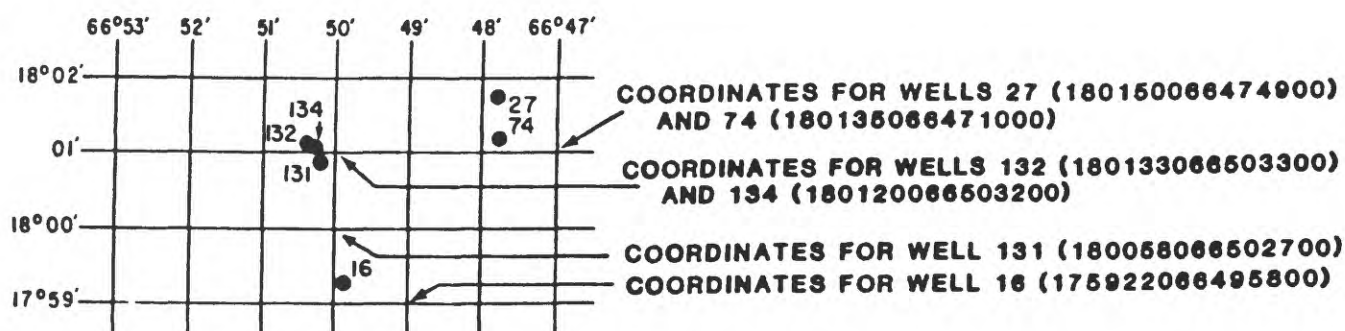


Figure 12.--Grid showing system for numbering wells and miscellaneous sites (latitude and longitude).

Records of Stage and Water Discharge

Records of stage and water discharge may be complete or partial. Complete records of discharge are those obtained using a continuous stage-recording device through which either instantaneous or mean daily discharges may be computed for any time, or any period of time, during the period of record. Complete records of lake or reservoir content, similarly, are those for which stage or content may be computed or estimated with reasonable accuracy for any time, or period of time. They may be obtained using a continuous stage-recording device, but need not be. Because daily mean discharges and end-of-day contents commonly are published for such stations, they are referred to as "daily stations."

By contrast, partial records are obtained through discrete measurements without using a continuous stage-recording device and pertain only to a few flow characteristics, or perhaps only one. The nature of the partial record is indicated by table titles such as "Low-flow partial records." Records of miscellaneous discharge measurements or of measurements from special studies, such as low-flow seepage studies, may be considered as partial records, but they are presented separately in this type of report. Location of all complete-record stations for which data are given in this report are shown in figures 5 and 8.

Data Collection and Computation

The data obtained at a complete-record gaging station on a stream or canal consists of a continuous record of stage, individual measurements of discharge throughout a range of stages, and notations regarding factors that may affect the relationships between stage and discharge. These data, together with supplemental information, such as weather records, are used to compute daily discharges. The data obtained at a complete-record gaging station on a lake or reservoir consist of a record of stage and of notations regarding factors that may affect the relationship between stage and lake content. These data are used with stage-area and stage-capacity curves or tables to compute water-surface areas and lake storage.

Continuous records of stage are obtained with analog recorders that trace continuous graphs of stage or with digital recorders that punch stage values on paper tapes at selected time intervals or electronic satellite data collector platforms that receive stage values at selected time intervals. Measurements of discharge are made with current meters using methods adapted by the Geological Survey as a result of experience accumulated since 1880. These methods are described in standard textbooks, in Water-Supply Paper 2175, and in U.S. Geological Survey Techniques of Water-Resources Investigations, Book 3, Chapter A6.

In computing discharge records, results of individual measurements are plotted against the corresponding stages, and stage-discharge relation curves are then constructed. From these curves, rating tables indicating the approximate discharge for any stage within the range of the measurements are prepared. If it is necessary to define extremes of discharge outside the range of the current-meter measurements, the curves are extended using: (1) logarithmic plotting; (2) velocity-area studies; (3) results of indirect measurements of peak discharge, such as slope-area or contracted-opening measurements, and computations of flow-over-dams or weirs; or (4) step-backwater techniques.

Daily mean discharges are computed by applying the daily mean stages (gage heights) to the stage-discharge curves or tables. If the stage-discharge relation is subject to change because of frequent or continual change in the physical features that form the control, the daily mean discharge is determined by the shifting-control method, in which correction factors based on the individual discharge measurements and notes of the personnel making the measurements are applied to the gage heights before the discharges are determined from the curves or tables. This shifting-control method also is used if the stage-discharge relation is changed temporarily because of aquatic growth or debris on the control. At some stations the stage-discharge relation is affected by changing stage; at these stations the rate of change in stage is used as a factor in computing discharge.

In computing records of lake or reservoir contents, it is necessary to have available from surveys, curves or tables defining the relationship of stage and contents. The application of stage to the stage-content curves or tables gives the contents from which daily, monthly or yearly changes then are determined. If the stage-content relationship changes because of deposition of sediment in a lake or reservoir, periodic surveys may be necessary to redefine it. Even when this is done, as time between the last survey increases, the contents computed may increase in error. Discharges over lake or reservoir spillways are computed from stage-discharge relationships much as other stream discharges are computed.

For some gaging stations there are periods when no gage-height record is obtained, or the recorded gage height is so faulty that it cannot be used to compute daily discharge or contents. This happens when the recorder stops or otherwise fails to operate properly, intakes are plugged, the float is loose in the well, or for various other reasons. For such periods, the daily discharges are estimated from the recorded range in stage, previous or following record, discharge measurements, weather records, and comparison with other station records from the same or nearby basins. Likewise, daily contents may be estimated from operator's logs, previous or following record, inflow-outflow studies, and other information. Information explaining how estimated daily-discharge values are identified in station records is included in the next two sections, "Data Presentation" (REMARKS paragraph) and "Identifying Estimated Daily Discharge."

Data Presentation

Steamflow data in this report are presented in a new format that is considerably different from the format in data reports prior to the 1992 water year. The major changes are that statistical characteristics of discharge now appear in tabular summaries following the water-year data table and less information is provided in the text or station manuscript above the table. These changes represent the results of a pilot program to reformat the annual water-data report to meet current user needs and data preferences.

The records published for each continuous-record surface-water discharge station (gaging station) now consist of four parts, the manuscript or station description; the data table of daily mean values of discharge for the current water year with summary data; a tabular statistical summary of monthly mean flow data for a designated period, by water year; and a summary statistics table that includes statistical data of annual, daily, and instantaneous flows as well as data pertaining to annual runoff, 7-day low-flow minimum, and flow duration.

Station manuscript

The manuscript provides, under various headings, descriptive information, such as station location; period of record; historical extremes outside the period of record; record accuracy; and other remarks pertinent to station operation and regulation. The following information, as appropriate, is provided with each continuous record of discharge or lake content. Comments to follow clarify information presented under the various headings of the stations descriptions.

LOCATION.--Information on locations is obtained from the most accurate maps available. The location of the gage with respect to the cultural and physical features in the vicinity and with respect to the reference place mentioned in the station name is given.

DRAINAGE AREA.--Drainage areas are measured using the most accurate maps available. Drainage areas are updated as better maps become available.

PERIOD OF RECORD.--This indicates the period for which there are published records for the station or for an equivalent station. An equivalent station is one that was in operation at a time that the present station was not, and whose location was such that records from it can reasonably be considered equivalent with records from the present station.

REVISED RECORDS.--Because of new information, published records occasionally are found to be incorrect, and revisions are printed in later reports. Listed under this heading are all the reports in which revisions have been published for the station and the water years to which the revisions apply. If a revision did not include daily, monthly, or annual figures of discharge, that fact is noted after the year dates as follows: "(M)" means that only the instantaneous maximum discharge was revised; "(m)" that only the instantaneous minimum was revised; and "(P)" that only peak discharges were revised. If the drainage area has been revised, the report in which the most recently revised figure was first published is given.

GAGE.--The type of gage in current use, the datum of the current gage, and a condensed history of the types, locations, and datums of previous gages are given under this heading.

REMARKS.--All periods of estimated daily-discharge record will either be identified by date in this paragraph of the station description for water-discharge stations or flagged in the daily-discharge table. (See next section, "Identifying Estimated Daily Discharge.") If a remarks statement is used to identify estimated record, the paragraph will begin with this information presented as the first entry. The paragraph is also used to present information relative to the accuracy of the records, to special methods of computations, to conditions that affect natural flow at the station and, possibly, to other pertinent items. For reservoir stations, information is given on the dam forming the reservoir, the capacity, outlet works and spillway, and purpose and use of the reservoir.

COOPERATION.--Records provided by a cooperating organization or obtained for the Geological Survey by a cooperating organization are identified here.

EXTREMES OUTSIDE PERIOD OF RECORD.--Included here is information concerning major floods or unusually low flows that occurred outside the stated period of record. The information may or may not have been obtained by the U.S. Geological Survey.

REVISIONS.--If a critical error in published records is discovered, a revision is included in the first report published following discovery of the error.

Although rare, occasionally the records of a discontinued gaging station may need revision. Because, for these stations, there would be no current or, possibly, future station manuscript published to document the revision in a "Revised Records" entry, users of data for these stations who obtained the record from previously published data reports may wish to contact the District office to determine if the published records were ever revised after the station was discontinued. Of course, if the data were obtained by computer retrieval, the data would be current and there would be no need to check because any published revision of data is always accompanied by revision of the corresponding data in computer storage.

Manuscript information for lake or reservoir stations differs from that for stream stations in the nature of the "Remarks" and in the inclusion of a skeleton stage-capacity table when daily contents are given.

Data table of daily mean value

The daily table of discharge records for stream-gaging stations gives mean discharge for each day of the water year. In the monthly summary for the table, the line headed "TOTAL" gives the sum of the daily figures for each month; the line headed "MEAN" gives the average flow in cubic feet per second for the month; and the lines headed "MAX" and "MIN" give the maximum and minimum daily mean discharges, respectively, for each month. Discharge for the month also is usually expressed in cubic feet per second per square mile (line headed "CFSM"); or in inches (line headed "IN"); or in acre-feet (line headed "AC-FT"). Figures for cubic feet per second per square mile and runoff in inches or in acre-feet may be omitted if there is extensive regulation or diversion or if the drainage area includes large noncontributing areas.

Statistics of monthly mean data

A tabular summary of the mean (line headed "MEAN"), maximum (line headed "MAX"), and minimum (line headed "MIN") of monthly mean flows for each month for a designated period is provided below the mean values table. The water years of the first occurrence of the maximum and minimum monthly flow are provided immediately below those figures. The designated period will be expressed as "FOR WATER YEARS ____-____, BY WATER YEAR (WY)," and will list the first and last water years of the range of years selected from the PERIOD OF RECORD paragraph in the station manuscript. It will consist of all of the station records within the specified water years, including complete months of record for partial water years, if any, and may coincide with the period of record for the station. The water years for which the statistics are computed will be consecutive, unless a break in the station record is indicated in the manuscript.

Summary statistics

A table titled "SUMMARY STATISTICS" follows the statistics of monthly mean data tabulation. This table consists of four columns, with the first column containing the line headings of the statistics being reported. The table provides a statistical summary of yearly, daily, and instantaneous flows, not only for the current water year but also for the previous calendar year and for a designated period, as appropriate. The designated period selected, "WATER YEARS ____-____," will consist of all of the station records within the specified water years, inclusive, including complete months of record for partial water years, if any, and may coincide with the period of record for the station. The water years for which the statistics are computed will be consecutive, unless a break in the station record is indicated in the manuscript. All of the calculations for the statistical characteristics designated ANNUAL (see line headings below.), except for the "ANNUAL 7-DAY MINIMUM" statistic, are calculated for the designated period using complete water years. The other statistical characteristics may be calculated using partial water years.

The date or water year, as appropriate, of the first occurrence of each statistic reporting extreme values of discharge is provided adjacent to the statistic. Repeated occurrences may be noted in the REMARKS paragraph of the manuscript or in footnotes. Because the designated period may not be the same as the station period of record published in the manuscript, occasionally the dates of occurrence listed for the daily and instantaneous extremes in the designated-period column may not be within the selected water years listed in the heading. When this occurs, it will be noted in the REMARKS paragraph or in footnotes. Selected streamflow duration curve statistics and runoff data are also given. Runoff data may be omitted if there is extensive regulation or diversion of flow in the drainage basin.

The following summary statistics data, as appropriate, are provided with each continuous record of discharge. Comments to follow clarify information presented under the various line headings of the summary statistics table.

ANNUAL TOTAL.--The sum of the daily mean values of discharge for the year. At some stations the annual total discharge is adjusted for reservoir storage or diversion. The adjusted figures are identified by a symbol and corresponding footnotes.

ANNUAL MEAN.--The arithmetic mean of the individual daily mean discharges for the year noted or for the designated period. At some stations the yearly mean discharge is adjusted for reservoir storage or diversion. The adjusted figures are identified by a symbol and corresponding footnotes.

HIGHEST ANNUAL MEAN.--The maximum annual mean discharge occurring for the designated period.

LOWEST ANNUAL MEAN.--The minimum annual mean discharge occurring for the designated period.

HIGHEST DAILY MEAN.--The maximum daily mean discharge for the year or for the designated period.

LOWEST DAILY MEAN.--The minimum daily mean discharge for the year or for the designated period.

ANNUAL 7-DAY MINIMUM.--The lowest mean discharge for 7 consecutive days for a calendar year or a water year. Note that most low-flow frequency analyses of annual 7-day minimum flows use a climatic year (April 1 - March 31). The date shown in the summary statistics table is the initial date of the 7-day period. (This value should not be confused with the 7-day 10-year low-flow statistics).

INSTANTANEOUS PEAK FLOW.--The maximum instantaneous discharge occurring for the water year or for the designated period. Note that secondary instantaneous peak discharges above a selected base discharge are stored in District computer files for stations meeting certain criteria. Those discharge values may be obtained by writing to the District Office. (See address on back of the title page of this report.)

INSTANTANEOUS PEAK STAGE.--The maximum instantaneous stage occurring for the water year or for the designated period. If the dates of occurrence for the instantaneous peak flow and instantaneous peak stage differ, the REMARKS paragraph in the manuscript or a footnote may be used to provide further information.

INSTANTANEOUS LOW FLOW.--The minimum instantaneous discharge occurring for the water year or for the designated period.

ANNUAL RUNOFF.--Indicates the total quantity of water in runoff for a drainage area for the year. Data reports may use any of the following units of measurements in presenting annual runoff data:

Acre-foot (AC-FT) is the quantity of water required to cover 1 acre to a depth of 1 foot and is equivalent to 43,560 cubic feet or about 326,000 gallons or 1,233 cubic meters.

Cubic feet per second per square mile (CFSM) is the average number of cubic feet of water flowing per second from each square mile of area drained, assuming the runoff is distributed uniformly in time and area.

Inches (INCHES) indicates the depth to which the drainage area would be covered if all of the runoff for a given time period were uniformly distributed on it.

10 PERCENT EXCEEDS.--The discharge that is exceeded by 10 percent of the flow for the designated period.

50 PERCENT EXCEEDS.--The discharge that is exceeded by 50 percent of the flow for the designated period.

90 PERCENT EXCEEDS.--The discharge that is exceeded by 90 percent of the flow for the designated period.

Data collected at partial-record stations follow the information for continuous-record sites. Data for partial-record discharge stations are presented in a table of discharge measurements at low-flow partial-record stations. These measurements are generally made in times of drought to give better areal coverage to those events. Those measurements and others collected for some special reason are called measurements at miscellaneous sites.

Identifying Estimated Daily Discharge

Estimated daily-discharge values published in the water-discharge tables are identified by flagging individual daily values with the letter symbol "e" and printing a table footnote, "e Estimated."

Accuracy of the Records

The accuracy of streamflow records depends primarily on: (1) The stability of the stage-discharge relation or, if the control is unstable, the frequency of discharge measurements; and (2) the accuracy of measurements of stage, measurements of discharge, and interpretation of records.

The accuracy attributed to the records is indicated under "REMARKS." "Excellent" means that about 95 percent of the daily discharges are within 5 percent of the true; "good," within 10 percent; and "fair," within 15 percent. Records that do not meet the criteria mentioned, are rated "poor." Different accuracies may be attributed to different parts of a given record.

Daily mean discharges in this report are given to the nearest hundredth of a cubic foot per second for values less than 1 ft³/s; to the nearest tenth between 1.0 and 10 ft³/s; to whole numbers between 10 and 1,000 ft³/s; and to 3 significant figures for more than 1,000 ft³/s. The number of significant figures used is based solely on the magnitude of the discharge value. The same rounding rules apply to discharges listed for partial-record stations and miscellaneous sites.

Information used in the preparation of the records in this publication, such as discharge-measurement notes, gage-height records, temperature measurements, and rating tables are on file in the Caribbean District office. Also, most of the daily mean discharges are in computer-readable form and have been analyzed statistically. Information on the availability of the unpublished information or on the results of statistical analyses of the published records may be obtained from the District office.

Records of Surface-Water Quality

Records of surface-water quality ordinarily are obtained at or near stream-gaging stations because interpretation of records of surface-water quality nearly always requires corresponding discharge data. Records of surface-water quality in this report may involve a variety of types of data and measurement frequencies.

Classification of Records

Water-quality data for surface-water sites are grouped into one of three classifications. A continuing-record station is a site where data are collected on a regularly scheduled basis. Frequency may be once or more times daily, weekly, monthly, or quarterly. A partial-record station is a site where limited water-quality data are collected systematically over a period of years. Frequency of sampling is usually less than quarterly. A miscellaneous sampling site is a location other than a continuing or partial-record station, where random samples are collected to give better areal coverage to define water-quality conditions in the river basin.

A careful distinction needs to be made between "continuing records" as used in this report and "continuous recordings," which refers to a continuous graph or a series of discrete values punched at short intervals on a paper tape. Some records of water quality, such as temperature and specific conductance, may be obtained through continuous recordings; however, because of costs, most data are obtained only monthly or less frequently. Locations of stations for which records on the quality of surface water appear in this report are shown in figure 6.

Arrangement of Records

Water-quality records collected at a surface-water daily record station are published immediately following that record, regardless of the frequency of sample collection. Station number and name are the same for both records. Where a surface-water daily record station is not available or where the water quality differs significantly from that at the nearby surface-water station, the continuing water-quality record is published with its own station number and name in the regular downstream-order sequence. Water-quality data for partial-record stations and for miscellaneous sampling sites appear in separate tables following the table of discharge measurement at miscellaneous sites.

On-site Measurements and Sample Collection

In obtaining water-quality data, a major concern needs to be assuring that the data obtained represent the in situ quality of the water. To assure this, certain measurements, such as water temperature, pH, and dissolved oxygen, need to be made onsite when the samples are taken. To assure that measurements made in the laboratory also represent the in situ water, carefully prescribed procedures need to be followed in collecting the samples, in treating the samples to prevent changes in quality pending analysis, and in shipping the samples to the laboratory. Procedures for onsite measurements and for collecting, treating, and shipping samples are given in publications on "Techniques of Water-Resources Investigations," Book 1, Chap. D2; Book 3, Chap. C2; Book 5, Chap. A1, A3, and A4. Detailed information on collecting, treating, and shipping samples may be obtained from the Geological Survey District office.

One sample can define adequately the water quality at a given time if the mixture of solutes throughout the stream cross section is homogeneous. However, the concentration of solutes at different locations in the cross section may vary widely with different rates of water discharge, depending on the source of material and the turbulence and mixing of the stream. Some streams must be sampled through several vertical sections to obtain a representative sample needed for an accurate mean concentration and for use in calculating load. All samples obtained for the National Stream Quality Accounting Network (see definitions) are obtained from at least several verticals. Whether samples are obtained from the centroid of flow or from several verticals, depends on flow conditions and other factors which must be evaluated by the collector.

Chemical-quality data published in this report are considered to be the most representative values available for the stations listed. The values reported represent water-quality conditions at the time of sampling as much as possible, consistent with available sampling techniques and methods of analysis. In the rare case where an apparent inconsistency exists between a reported pH value and the relative abundance of carbon dioxide species (carbonate and bicarbonate), the inconsistency is the result of a slight uptake of carbon dioxide from the air by the sample between measurement of pH in the field and determination of carbonate and bicarbonate in the laboratory.

For chemical-quality stations equipped with digital monitors, the records consist of daily maximum, minimum, and mean values for each constituent measured and are based upon hourly punches beginning at 0100 hours and ending at 2400 hours for the day of record. More detailed records, when available, (hourly values) may be obtained from the U.S.G.S. District office whose address is given on the back of the title page of this report.

Water Temperature

Water temperatures are measured at most of the water-quality stations. In addition, water temperatures are taken at time of discharge measurements for water-discharge stations. For stations where water temperatures are taken manually once or twice daily, the water temperatures are taken at about the same time each day. Large streams have a small diurnal temperature change; shallow streams may have a daily range of several degrees and may follow closely the changes in air temperature. Some streams may be affected by waste-heat discharges.

At stations where recording instruments are used, either mean temperatures or maximum and minimum temperatures for each day are published. Water temperatures measured at the time of water-discharge measurements are on file in the District office.

Sediment

Suspended-sediment concentrations are determined from samples collected by using depth-integrating and pumping sediment samplers. Samples usually are obtained at several verticals in the cross section, or a single sample may be obtained at a fixed point and a coefficient applied to determine the mean concentration in the cross sections.

During periods of rapidly changing flow or rapidly changing concentration, samples may have been collected more frequently (twice daily or hourly). The published sediment discharges for days of rapidly changing flow or concentration were computed by the subdivided-day method (time-discharge weighted average). Therefore, for those days when the published sediment discharge value differs from the value computed as the product of discharge times mean concentration times 0.0027, the reader can assume that the sediment discharge for that day was computed by the subdivided-day method. For periods when no samples were collected, daily discharges of suspended sediment were estimated on the basis of water discharge, sediment concentrations observed immediately before and after the periods, suspended-sediment loads for other periods of similar discharge, and computed by the subdivided-day method using the transport curves.

At other stations, suspended-sediment samples were collected periodically at many verticals in the stream cross section. Although data collected periodically may represent conditions only at the time of observations, such data are useful in establishing seasonal relations between quality and streamflow and in predicting long-term sediment-discharge characteristics of the stream.

In addition to the records of suspended-sediment discharge, records of the periodic measurements of the particle-size distribution of the suspended sediment are included for some stations.

Laboratory Measurements

Sediment samples, samples for biochemical-oxygen demand (BOD), samples for indicator bacteria, and daily samples for specific conductance are analyzed locally. All other samples are analyzed in the Geological Survey laboratories in Denver, Co. or Ocala, Fla. Methods used in analyzing sediment samples and computing sediment records are given in TWRI, Book 5, Chap. C1. Methods used by the Geological Survey laboratories are given in TWRI, Book 1, Chap. D2; Book 3, Chap. C2; Book 5, Chap. A1, A3, and A4.

Data Presentation

For continuing-record stations, information pertinent to the history of station operation is provided in descriptive headings preceding the tabular data. These descriptive headings give details regarding location, drainage area, period of record, type of data available, instrumentation, general remarks, cooperation, and extremes for parameters currently measured daily. Tables of chemical, physical, biological, radiochemical data, and so forth, obtained at a frequency less than daily are presented first, and tables of "daily values" of specific conductance, pH, water temperature, dissolved oxygen, and suspended sediment then follow in sequence, when these parameters are studied.

In the descriptive headings, if the location is identical to that of the discharge gaging station, neither the LOCATION nor the DRAINAGE AREA statements are repeated. The following information, as appropriate, is provided with each continuous-record station. Comments that follow clarify information presented under the various headings of the station description.

LOCATION.--See Data Presentation under "Records of Stage and Water Discharge;" same comments apply.

DRAINAGE AREA.--See Data Presentation under "Records of Stage and Water Discharge;" same comments apply.

PERIOD OF RECORD.--This indicates the periods for which there are published water-quality records for the station. The periods are shown separately for records of parameters measured daily or continuously and those measured less than daily. For those measured daily or continuously, periods of record are given for the parameters individually.

INSTRUMENTATION.--Information on instrumentation is given only if a water-quality monitor temperature record, sediment pumping sampler, or other sampling device is in operation at a station.

REMARKS.--Remarks provide added information pertinent to the collection, analysis, or computation of the records.

COOPERATION.--Records provided by a cooperating organization or obtained for the Geological Survey by a cooperating organization are identified here.

EXTREMES.--Maximums and minimums are given only for parameters measured daily or more frequently. None are given for parameters measured weekly or less frequently, because the true maximums or minimums may not have been sampled. Extremes, when given, are provided for both the period of record and for the current water year.

REVISIONS.--If errors in published water-quality records are discovered after publication, appropriate updates are made to the Water-Quality File in the U.S. Geological Survey's computerized data system, WATSTORE, and subsequently by monthly transfer of update transactions to the U.S. Environmental Protection Agency's STORET system. Because the usual volume of updates makes it impractical to document individual changes in the State data-report series or elsewhere, potential users of U.S. Geological Survey water-quality data are encouraged to obtain all required data from the appropriate computer file to insure the most recent updates.

The surface-water-quality records for partial-record stations and miscellaneous sampling sites are published in separate tables following the table of discharge measurements at miscellaneous sites. No descriptive statements are given for these records. Each station is published with its own station number and name in the regular downstream-order sequence.

Remark Codes

The following remark codes may appear with the water-quality data in this report:

| <u>PRINTED OUTPUT</u> | <u>REMARK</u> |
|-----------------------|--|
| E | Estimated value |
| > | Actual value is known to be greater than the value shown |
| < | Actual value is known to be less than the value shown |
| K | Results based on colony count outside the acceptance range (non-ideal colony count) |
| L | Biological organism count less than 0.5 percent (organism may be observed rather than counted) |
| D | Biological organism count equal to or greater than 15 percent (dominant) |
| & | Biological organism estimated as dominant |

Records of Ground-Water Levels

Only ground-water level data from a basic network of observation wells are published herein. This basic network contains observation wells so located that the most significant data are obtained from the fewest wells in the most important aquifers.

Data Collection and Computation

Measurements of water levels are made in many types of wells under varying conditions, but the methods of measurement are standardized to the extent possible. The equipment and measuring techniques used at each observation well ensure that measurements at each well are of consistent accuracy and reliability.

Each well is identified by means of (1) a 15-digit number that is based on latitude and longitude and (2) a local number that is provided for local needs. See figure 10.

Water-level records are obtained from direct measurements with a steel tape or from the graph or punched tape of a water-stage recorder. The water-level measurements in this report are given in feet with reference to land-surface datum (lsd). Land-surface datum is a datum plane that is approximately at land surface at each well. If known, the elevation of the land-surface datum is given in the well description. The height of the measuring point (MP) above or below land-surface datum is given in each well description. Water levels in wells equipped with recording gages are reported for every day and as an instantaneous observation at noon.

Water levels are reported to as many significant figures as can be justified by the local conditions. For example, in a measurement of a depth to water of several hundred feet, the error of determining the absolute value of the total depth to water may be a few tenths of a foot, whereas the error in determining the net change of water level between successive measurements may be only a hundredth of a few hundredths of a foot. For lesser depths to water, the accuracy is greater. Accordingly, most measurements reported to a hundredth of a foot, but some are given to a tenth of a foot or a larger unit.

Data Presentation

Each well record consists of three parts, the station description, the data table of water levels observed during the water year and a graph of the water levels for the current water year and other selected period. The description of the well is presented first through use of descriptive headings preceding the tabular data. The comments to follow clarify information presented under the various headings of the well description.

LOCATION.--This paragraph follows the well-identification number and reports the latitude and longitude (given in degrees, minutes, and seconds); a landline location designation; the hydrologic-unit number; the distance and direction from a geographic point of reference; and the owner's name.

AQUIFER.--This entry designates by name (if a name exists) and geologic age the aquifer(s) open to the well.

WELL CHARACTERISTICS.--This entry describes the well in terms of depth, diameter, casing depth and/or screened interval, method of construction, use, and additional information such as casing breaks, collapsed screen, and other changes since construction.

INSTRUMENTATION.--This paragraph provides information on both the frequency of measurement and the collection method used, allowing the user to better evaluate the reported water-level extremes by knowing whether they are based on weekly, monthly, or some other frequency of measurement.

DATUM.--This entry describes both the measuring point and the land-surface elevation at the well. The measuring point is described physically (such as top of collar, notch in top of casing, plug in pump base and so on), and in relation to land surface (such as 1.3 ft above land-surface datum). The elevation of the land-surface datum is described in feet above (or below) sea level; it is reported with a precision depending on the method of determination.

REMARKS.--This entry describes factors that may influence the water level in a well or the measurement of the water level. It should identify wells that also are water-quality observation wells, and may be used to acknowledge the assistance of local (non-Survey) observers.

PERIOD OF RECORD.--This entry indicates the period for which there are published records for the well. It reports the month and year of the start of publication of water-level records by the U.S. Geological Survey and the words "to current year" if the records are to be continued into the following year. Periods for which water-level records are available, but are not published by the Geological Survey, may be noted.

EXTREMES FOR PERIOD OF RECORD.--This entry contains the highest and lowest water levels of the period of published record, with respect to land-surface datum, and the dates of their occurrence.

A table of water levels follows the station description for each well. Water levels are reported in feet below land-surface datum and all taped measurements of water level are listed. For wells equipped with recorders, daily values tables are published for the instantaneous water-level observation at noon. The highest and lowest water levels of the water year and their dates of occurrence are shown on a line below the table. Because all values are not published for wells with recorders, the extremes may be values that are not listed in the table. Missing records are indicated by dashes in place of the water level. A hydrograph for a selected period of record follows each water-level table.

Records of Ground-Water Quality

Records of ground-water quality in this type of report differ from other types of records in that for most sampling sites they consist of only one set of measurements for the water year. The quality of ground water ordinarily changes only slowly; therefore, for most general purposes one annual sampling, or only a few samples taken at infrequent intervals during the year, is sufficient. Frequent measurement of the same constituents is not necessary unless one is concerned with a particular problem, such as monitoring for trends in nitrate concentration. In the special cases where the quality of ground water may change more rapidly, more frequent measurements are made to identify the nature of the changes.

Data Collection and Computation

The records of ground-water quality in this report were obtained mostly as a part of special studies in specific areas. Consequently, a number of chemical analyses are presented for some counties but none are presented for others. As a result, the records for this year, by themselves, do not provide a balanced view of ground-water quality Statewide. Such a view can be attained only by considering records for this year in context with similar records obtained for these and other counties in earlier years.

Most methods for collecting and analyzing water samples are described in the "U.S. Geological Survey Techniques of Water-Resources Investigations" manuals listed on a following page. The values reported in this type of report represent water-quality conditions at the time of sampling as much as possible, consistent with available sampling techniques and methods of analysis. All samples are obtained by trained personnel. The wells sampled are pumped long enough to assure that the water collected comes directly from the aquifer and has not stood for a long time in the well casing where it would have been exposed to the atmosphere and to the material, possibly metal, comprising the casings.

Data Presentation

The records of ground-water quality, when available, are published in a section titled QUALITY OF GROUND WATER immediately following the ground-water level records. Data for quality of ground water are listed alphabetically by County, and are identified by well number. The prime identification number for wells sampled is the 15-digit number derived from the latitude-longitude locations. No descriptive statements are given for ground-water-quality records; however, the well number, depth of well, date of sampling, and other pertinent data are given in the table containing the chemical analyses of the ground water. The REMARK codes listed for surface-water-quality records are also applicable to ground-water-quality records.

ACCESS TO WATSTORE DATA

The U.S. Geological Survey is the principal Federal water-data agency and, as such, collects and disseminates about 70 percent of the water data currently being used by numerous State, local, private, and other Federal agencies to develop and manage our water resources. As part of the U.S. Geological Survey's program of releasing water data to the public, a large-scale computerized system has been developed for the storage and retrieval of water data collected through its activities. The National Water-Data Storage and Retrieval System (WATSTORE) was established in 1972 to provide an effective and efficient means for the processing and maintenance of water data collected through the activities of the U.S. Geological Survey and to facilitate release of the data to the public. A variety of useful products, ranging from data tables to complex statistical analyses such as Log Pearson Type III, can be produced using WATSTORE. The system resides on the central computer facilities of the U.S. Geological Survey at its National Center in Reston, Virginia, and consists of related files and data bases.

- * Station Header File - Contains descriptive information on over 440,000 sites throughout the United States and its territories where the U.S. Geological Survey collects or has collected data.

- * Daily Values Files - Contains over 220 million daily values of streamflow, stages, reservoir contents, water temperatures, specific conductances, sediment concentrations, sediment discharges, and ground-water level.

- * Peak Flow File - Contains approximately 500,000 maximum (peak) streamflow and gage-height values at surface-water sites.

- * Water-Quality Data - Contains approximately 2 million analyses of water samples that describe the chemical, physical, biological, and radio-chemicals characteristics of both surface and ground water.

- * Ground-Water Site Inventory Data Base - Contains inventory data for over 900,000 wells, springs, and other sources of ground water. The data includes site location, geohydrologic characteristics, well-construction history, and one-time field measurements such as water temperature.

In 1976, the U.S. Geological Survey opened WATSTORE to the public for direct access. The signing of a Memorandum of Agreement with the Survey is required to obtain direct access to WATSTORE. The system can be accessed either synchronously or asynchronously. The requestor will be expected to pay all computer costs he/she incurs. Direct access may be obtained by contacting:

U.S. Geological Survey
National Water Data Exchange
421 USGS National Center
Reston, Virginia 22092

In addition to providing direct access to WATSTORE, data can be provided in various machine-readable formats on magnetic tape or 5-1/4 inch floppy disk; and, as noted in the introduction, on CD-ROM discs. Beginning with the 1990 water year, all water-data reports will also be available on Compact Disc-Read Only Memory (CD-ROM). All data report published for the current water year for the entire Nation, including Puerto Rico and the Trust Territories, will be reproduced on a single CD-ROM disc. Information about the availability of specific types of data or products, and user charges, can be obtained locally from each of the Water Resources Division's offices. (See address on the back of the title page). A limited number of CD-ROM discs will be available for sale by the Books and Open-File Reports Section, U.S. Geological Survey, Federal Center, Box 25425, Denver, Colorado 80225.

DEFINITION OF TERMS

Terms related to streamflow, water-quality, and other hydrologic data as used in this report, are defined below. See also the table for converting inch- pound units to the International System of units (SI) on the inside of the back cover.

Acre-foot (AC-FT, acre-ft) is the quantity of water required to cover 1 acre to a depth of 1 foot and is equal to about 326,000 gallons or 1,233 cubic meters.

Adenosine triphosphate (ATP) is an organic, phosphate-rich, compound important in the transfer of energy in organisms. Its central role in living cells makes it an excellent indicator of the presence of living material in water. A measure of ATP therefore provides a sensitive and rapid estimate of biomass. ATP is reported in micrograms per liter of the original water sample.

Algae growth potential (AGP) is the maximum algal dry weight biomass that can be produced in a natural water sample under standardized laboratory conditions. The growth potential is the algal biomass present a stationary phase and is expressed as milligrams dry weight of algae produced per liter of sample.

Aquifer is a geologic formation, group of formations, or part of a formation that contains sufficient saturated permeable material to yield significant quantities of water to wells and springs.

Artesian means confined and is used to describe a well in which the water level stands above the top of the aquifer, tapped by the well. A flowing artesian well is one in which the water level is above the land surface.

Bacteria are microscopic unicellular organisms, typically spherical, rodlike, or spiral and threadlike in shape, often clumped into colonies. Some bacteria cause disease, while others perform an essential role in nature in the recycling of materials; for example, by decomposing organic matter into a form available for reuse by plants.

Total coliform bacteria are a particular group of bacteria that are used as indicators of possible sewage pollution. They are characterized as aerobic or facultative anaerobic, gram-negative, nonspore-forming, rod-shaped bacteria which ferment lactose with gas formation within 48 hours at 35°C. In the laboratory these bacteria are defined as all the organisms which produce colonies with a golden-green metallic sheen within 24 hours when incubated at 35°C \pm 1.0°C on M-Endo medium (nutrient medium for bacterial growth). Their concentrations are expressed as number of colonies per 100 mL of sample.

Fecal coliform bacteria are bacteria that are present in the intestines or feces of warm-blooded animals. They are often used as indicators of the sanitary quality of the water. In the laboratory they are defined as all organisms which produce blue colonies within 24 hours when incubated at $44.5^{\circ}\text{C} \pm 0.2^{\circ}\text{C}$ on M-FC medium (nutrient medium for bacterial growth). Their concentrations are expressed as number of colonies per 100 mL of sample.

Fecal streptococcal bacteria are bacteria found also in intestines of warm-blooded animals. Their presence in water is considered to verify fecal pollution. They are characterized as Gram-positive, cocci bacteria which are capable of growth in brain-heart infusion broth. In the laboratory they are defined as all the organisms which produce red or pink colonies within 48 hours at $35^{\circ}\text{C} \pm 1.0^{\circ}\text{C}$ on KF-streptococcus medium (nutrient medium for bacterial growth). Their concentrations are expressed as number of colonies per 100 mL of sample.

Bed material is the unconsolidated material of which a streambed, lake, pond, reservoir, or estuary bottom is composed.

Biochemical oxygen demand (BOD) is a measure of the quantity of dissolved oxygen, in milligrams per liter, necessary for the decomposition of organic matter by microorganisms, such as bacteria.

Biomass is the amount of living matter present at any given time, expressed as the mass per unit area or volume of habitat.

Ash mass is the mass or amount of residue present after the residue from the dry mass determination has been ashed in a muffle furnace at a temperature of 500°C for 1 hour. The ash mass values of zooplankton and phytoplankton are expressed in grams per cubic meter (g/m^3), and periphyton and benthic organisms in grams per square meter (g/m^2).

Dry mass refers to the mass of residue present after drying in an oven at 105°C for zooplankton and periphyton, until the mass remains unchanged. This mass represents the total organic matter, ash and sediment, in the sample. Dry-mass values are expressed in the same units as ash mass.

Organic mass or volatile mass of the living substance is the difference between the dry mass and the ash mass and represents the actual matter. The organic mass is expressed in the same units as for ash and dry mass.

Wet mass is the mass of living matter plus contained water.

Bottom material: See Bed material.

Cells/volume refers to the number of cells of any organism which is counted by using a microscope and grid or counting cell. Many planktonic organisms are multicelled and are counted according to the number of contained cells per sample, usually milliliters (mL) or liters (L).

Chemical oxygen demand (COD) is a measure of the chemically oxidizable material in the water, and furnishes an approximation of the amount of organic and reducing material present. The determined value may correlate with natural water color or with carbonaceous organic pollution from sewage or industrial wastes.

Chlorophyll refers to the green pigments of plants. Chlorophyll a and b are the two most common green pigments in plants.

Color unit is produced by one milligram per liter of platinum in the form of the chloroplatinate ion. Color is expressed in units of the platinum-cobalt scale.

Contents is the volume of water in a reservoir or lake. Unless otherwise indicated, volume is computed on the basis of a level pool and does not include bank storage.

Control designates a feature downstream from the gage that determines the stage-discharge relation at the gage. This feature may be a natural constriction of the channel, an artificial structure, or a uniform cross section over a long reach of the channel.

Control structure as used in this report is a structure on a stream or canal that is used to regulate the flow or stage of the stream or to prevent the intrusion of salt water.

Cubic foot per second (ft³/s) is the rate of discharge representing a volume of 1 cubic foot passing a given point during 1 second and is equivalent to 7.48 gallons per second or 448.8 gallons per minute or 0.02832 cubic meters per second.

Cubic foot per second-day (ft³/s/day) is the volume of water represented by a flow of 1 cubic foot per second for 24 hours. It is equivalent to 86,400 cubic feet, approximately 1.9835 acre-feet, about 646,000 gallons, or 2,445 cubic meters.

Cubic feet per second per square mile (CFSM) is the average number of cubic feet of water flowing per second from each square mile of area drained, assuming that the runoff is distributed uniformly in time and area.

Discharge is the volume of water (or more broadly, volume of fluid plus suspended sediment), that passes a given point within a given period of time.

Instantaneous discharge is the discharge at a particular instant of time.

Mean discharge (MEAN) is the arithmetic mean of individual daily mean discharges during a specific period.

Annual 7-day minimum is the lowest mean discharge for 7 consecutive days for a calendar year or a water year. Note that most low-flow frequency analyses of annual 7-day minimum flows use a climatic year (April 1 - March 31). The date shown in the summary statistics table is the initial date of the 7-day period. (This value should not be confused with the 7-day 10-year low-flow statistic.)

Dissolved refers to that material in a representative water sample which passes through a 0.45 um membrane filter. This is a convenient operational definition used by Federal agencies that collect water data. Determinations of "dissolved" constituents are made on subsamples of the filtrate.

Dissolved-solids concentration of water is determined either analytically by the "residue-on-evaporation" method, or mathematically by totaling the concentrations of individual constituents reported in a comprehensive chemical analysis. During the analytical determination of dissolved solids, the bicarbonate (generally a major dissolved component of water) is converted to carbonate. Therefore, in the mathematical calculations of dissolved-solids concentration, the bicarbonate value, in milligrams per liter, is multiplied by 0.492 to reflect the change.

Diversity index is a numerical expression of evenness of distribution of aquatic organisms. The formula for diversity index is:

$$d = - \sum_{i=1}^s \frac{n_i}{n} \log_2 \frac{n_i}{n}$$

Where n_i is the number of individuals per taxon, n is the total number of individuals, and s is the total number of taxa in the sample of the community. Diversity index values range from zero, when all the organisms in the sample are the same, to some positive number, when some or all of the organisms in the sample are different.

Drainage area of a stream at a specified location is that area, measured in a horizontal plane, enclosed by a topographic divide from which direct surface runoff from precipitation normally drains by gravity into the stream above the specified point. Figures of drainage area given herein include all closed basins, or noncontribution areas, within the area unless otherwise noted.

Drainage basin is a part of the surface of the earth that is occupied by a drainage system, which consists of a surface stream or a body of impounded surface water together with all tributary surface streams and bodies of impounded surface water.

Gage height (G.H.) is the water-surface elevation referred to some arbitrary gage datum. Gage height is often used interchangeably with the more general term "stage," although gage height is more appropriate when used with a reading on a gage.

Gaging station is a particular site on a stream, canal, lake, or reservoir where systematic observations of hydrologic data are obtained.

Ground-water station is a well at which observations of ground-water level are made, either continuously by recorder, or periodically by hand. In addition, various chemical or physical parameters may be obtained, usually on a periodic basis.

Hardness of water is a physical-chemical characteristic that is commonly recognized by the increased quantity of soap required to produce lather. It is attributable to the presence of alkaline earths (principally calcium and magnesium) and is expressed as equivalent calcium carbonate (CaCO_3).

Hydrologic Bench-Mark Network is a network in small drainage basins around the country whose purpose is to provide consistent data on the hydrology, including water quality, and related factors in representative undeveloped watersheds nationwide, and to provide analyses on a continuing basis to compare and contrast conditions observed in basins more obviously affected by the activities of man.

Hydrologic unit is a geographic area representing part or all of a surface drainage basin or distinct hydrologic feature as delineated by the Office of Water Data Coordination on the State Hydrologic Unit Maps; each hydrologic unit is identified by an eight-digit number.

Land-surface datum (lsd) is a datum plane that is approximately at land surface at each ground-water observation well.

Measuring point (MP) is an arbitrary permanent reference point from which the distance to the water surface in a well is measured to obtain the water level.

Metamorphic stage refers to the stage of development that an organism exhibits during its transformation from an immature form to an adult form. This developmental process exists for most insects, and the degree of difference from the immature stage to the adult form varies from relatively slight to pronounced, with many intermediates. Examples of metamorphic stages of insects are egg-larva-adult or egg-nymph-adult.

Methylene blue active substances (MBAS) are apparent detergents. The determination depends on the formation of a blue color when methylene blue dye reacts with synthetic anionic detergent compounds.

Micrograms per gram (ug/g) is a unit expressing the concentration of a chemical element as the mass (micrograms) of the element per unit mass (gram) of material analyzed.

Micrograms per liter (UG/L, ug/L) is a unit expressing the concentration of chemical constituents in solution as mass (micrograms) of solute per unit volume (liter) of water. One thousand micrograms per liter is equivalent to one milligram per liter.

Milligrams per liter (MG/L, mg/L) is a unit for expressing the concentration of chemical constituents in solution. Milligrams per liter represent the mass of solute per unit volume (liter) of water. Concentration of suspended sediment also is expressed in mg/L, and is based on the mass of sediment per liter of water-sediment mixture. Conversion of chemical concentrations in Mg/L to milliequivalents per liter can be done by using the factors in table 4.

Table 4. Factors for conversion of chemical constituents in milligrams per liter to milliequivalents per liter.

| <u>Ion</u> | <u>Multiply by</u> | <u>Ion</u> | <u>Multiply by</u> |
|--------------------------|--------------------|-----------------------|--------------------|
| Aluminum (Al+3)*..... | 0.11119 | Iodide (I-1)..... | 0.00788 |
| Ammonia as NH4+1..... | .05544 | Iron (Fe+3)..... | .05372 |
| Barium (Ba+2)..... | .01456 | Lead (Pb+2)..... | .00965 |
| Bicarbonate (HCO3-1).... | .01639 | Lithium (Li+1)..... | .14411 |
| Bromide (Br-1)..... | .01251 | Magnesium (Mg+2)..... | .08226 |
| Calcium (Ca+2)..... | .04990 | Manganese (Mn+2)*.... | .03640 |
| Carbonate (CO3-2)..... | .03333 | Nickel (Ni+2)..... | .03406 |
| Chloride (Cl-1)..... | .02821 | Nitrate (NO3-1)..... | .01613 |
| Chromium (Cr+6)*..... | .11539 | Nitrite (NO2-1)..... | .02174 |
| Cobalt (Co+2)*..... | .03394 | Phosphate (PO4-3).... | .03159 |
| Copper (Cu+2)*..... | .03148 | Potassium (K+1)..... | .02557 |
| Cyanide (CN-1)..... | .03844 | Sodium (Na+1)..... | .04350 |
| Fluoride (F-1)..... | .05264 | Strontium (Sr+2)..... | .02283 |
| Hydrogen (H+1)..... | .99209 | Sulfate (SO4-2)..... | .02082 |
| Hydroxide (OH-1)..... | .05880 | Zinc (Zn+2)*..... | .03060 |

*Constituent reported in micrograms per liter; multiply by factor and divide results by 1,000.

National Stream Quality Accounting Network (NASQAN) is a nationwide data-collection network designed by the U.S. Geological Survey to meet many of the information needs of government agencies and other groups involved in natural or regional water-quality planning and management. The 500 or so sites in NASQAN are generally located at the downstream ends of hydrologic accounting units designated by the U.S. Geological Survey office of Water Data Coordination in consultation with the Water Resources Council. The objectives of NASQAN are (1) to obtain information on the quality and quantity of water moving within and from the United States through a systematic and uniform process of data collection, summarization, analysis, and reporting such that the data may be used for, (2) description of the areal variability of water quality in the Nation's rivers through analysis of description of the areal variability of water quality in the Nation's rivers through analysis of data from this and other programs, (3) detection of changes or trends with time in the pattern of occurrence of water-quality characteristics, and (4) providing a nationally consistent data base useful for water-quality assessment and hydrologic research.

National Trends Network (NTN) is a network for sampling atmospheric deposition in the United States. The purpose of the network is to determine the variability, both in location and in time, of the composition of atmospheric deposition, which includes snow, rain, dust particles, aerosols, and gases. The core from which the NTN was built was the already-existing deposition-monitoring network of the National Atmospheric Deposition Program (NADP).

Organism is any living entity.

Organism count/area refers to the number of organisms collected and enumerated in a sample and adjusted to the number per unit area habitat, usually square meters (m²), acres, or hectare. Periphyton, benthic organisms, and macrophytes are expressed in these terms.

Organism count/volume refers to the number of organisms collected and enumerated in a sample and adjusted to the number per sample volume, usually milliliters (mL) or liters (L). Numbers of planktonic organisms can be expressed in these terms.

Total organism count is the total number of organisms collected and enumerated in any particular sample.

Parameter Code is a 5-digit number used in the U.S. Geological Survey computerized data system, WATSTORE, to uniquely identify a specific constituent. The codes used in WATSTORE are the same as those used in the U.S. Environmental Protection Agency data system, STORET. The Environmental Protection Agency assigns and approves all requests for new codes.

Partial-record station is a particular site where limited streamflow and/or water-quality data are collected systematically over a period of years for use in hydrologic analyses.

Particle-size is the diameter, in millimeters (mm), of a particle determined by either sieve or sedimentation methods. Sedimentation methods (pipet, bottom-withdrawal tube, visual-accumulation tube) determine fall diameter of particles in either distilled water (chemically dispersed) or in native water (the river water at the time and point of sampling).

Particle-size classification used in this report agrees with recommendations made by the American Geophysical Union Subcommittee on Sediment Terminology. The classification is as follows:

| <u>Classification</u> | <u>Size (mm)</u> | <u>Method of analysis</u> |
|-----------------------|------------------|---------------------------|
| Clay..... | 0.00024 - 0.004 | Sedimentation |
| Silt..... | .004 - .062 | Sedimentation |
| Sand..... | .062 - 2.0 | Sedimentation or sieve |
| Gravel.... | 2.0 - 64.0 | Sieve |

The particle-size distributions given in this report are not necessarily representative of all particles in transport in the stream. Most of the organic matter is removed and the sample is subjected to mechanical and chemical dispersion before analysis in distilled water. Chemical dispersion is not used for native water analysis.

Percent composition is a unit for expressing the ratio of a particular part of a sample or population to the total sample or population, in terms of types, numbers, mass or volume.

Periphyton is the assemblage of microorganisms attached to and living upon submerged solid surfaces. While primarily consisting of algae, they also include bacteria, fungi, protozoa, rotifers, and other small organisms.

Pesticides are chemical compounds used to control undesirable organisms. Major categories of pesticides include insecticides, miticides, fungicides, herbicides, and rodenticides.

Picocurie (PC, pCi) is one trillionth (1×10^{-12}) of the amount of radioactivity represented by a curie (Ci). A curie is the amount of radioactivity that yields 3.7×10^{10} radioactive disintegrations per second. A picocurie yields 2.22 dpm (disintegrations per minute).

Plankton is the community of suspended, floating, or weakly swimming organisms that live in the open water of lakes and rivers.

Phytoplankton is the plant part of the plankton. They are usually microscopic and their movement is subject to the water currents. Phytoplankton growth is dependent upon solar radiation and nutrient substances. Because they are able to incorporate as well as release materials to the surrounding water, the phytoplankton have a profound effect upon the quality of the water. They are the primary food producers in the aquatic environment, and are commonly known as algae.

Blue-green algae are a group of phytoplankton organisms having a blue pigment, in addition to the green pigment called chlorophyll. Blue-green algae often cause nuisance conditions in water.

Diatoms are the unicellular or colonial algae having a siliceous shell. Their concentrations are expressed as number of cells per milliliter (cells/mL) of sample.

Green algae have chlorophyll pigments similar in color to those of higher green plants. Some forms produce algae mats or floating "moss" in lakes. Their concentrations are expressed as number of cells per milliliter (cells/mL) of sample.

Zooplankton is the animal part of the plankton. Zooplankton are capable of extensive movements within the water column and are often large enough to be seen with the unaided eye. Zooplankton are secondary consumers feeding upon bacteria, phytoplankton, and detritus. Because they are the grazers in the aquatic environment, the zooplankton are a vital part of the aquatic food web. The zooplankton community is dominated by small crustaceans and rotifers.

Primary productivity is a measure of the rate at which new organic matter is formed and accumulated through photosynthetic and chemosynthetic activity of producer organisms (chiefly, green plants). The rate of primary production is estimated by measuring the amount of oxygen released (oxygen method) or the amount of carbon assimilated by the plants (carbon method).

Milligrams of carbon per area or volume per unit time [mg C/(m².time)] for periphyton and macrophytes and [mg C/(m³.time)] for phytoplankton are units for expressing primary productivity. They define the amount of carbon dioxide consumed as measured by radioactive carbon (carbon 14). The carbon 14 method is of greater sensitivity than the oxygen light and dark bottle method, and is preferred for use in unenriched waters. Unit time may be either hour or day, depending on the incubation period.

Milligrams of oxygen per area or volume per unit time [mgO / (m².time)] for periphyton and macrophytes and [mgO / (m³.time)] for phytoplankton are the units for expressing primary productivity. They define production and respiration rates as estimated from changes in the measured dissolved-oxygen concentration. The oxygen light and dark bottle method is preferred if the rate of primary production is sufficient for accurate measurements to be made within 24 hours. Unit time may be either the hour or day, depending on the incubation period.

Polychlorinated biphenyls (PCBs) are industrial chemicals that are mixtures of chlorinated biphenyl compounds having various percentages of chlorine. They are similar in structure to organochlorine insecticides.

Radiochemical program is a network of regularly sampled water-quality stations where samples are collected to be analyzed for radioisotopes. The streams that are sampled represent major drainage basins in the conterminous United States.

Recoverable from bottom material is the amount of a given constituent that is in solution after a representative sample of bottom material has been digested by a method (usually using an acid or mixture of acids) that results in dissolution of readily soluble substances. Complete dissolution of all bottom material is not achieved by the digestion treatment and thus the determination represents less than the total amount (that is, less than 95 percent) of the constituent in the sample. To achieve comparability of analytical data, equivalent digestion procedures would be required of all laboratories performing such analyses because different digestion procedures are likely to produce different analytical results.

Return period is the average time interval between occurrences of a hydrological event of a given or greater magnitude, usually expressed in years. May also be called recurrence interval.

Runoff in inches (IN, in) shows the depth to which the drainage area would be covered if all the runoff for a given time period were uniformly distributed on it.

Sediment is solid material that originates mostly from disintegrated rocks and is transported by, suspended in, or deposited from water; it includes chemical and biochemical precipitates and decomposed organic material, such as humus. The quantity, characteristics, and cause of the occurrence of sediment in streams are influenced by environmental factors. Some major factors are degree of slope, length of slope, soil characteristics, land usage, and quantity and intensity of precipitation.

Bed load is the sediment that is transported in a stream by rolling, sliding, or skipping along the bed and very close to it. In this report, bed load is considered to consist of particles in transit within 0.25 ft of the streambed.

Bed load discharge (tons per day) is the quantity of bed load measured by dry weight that moves past a section as bed load in a given time.

Suspended sediment is the sediment that at any given time is maintained in suspension by the upward components of turbulent currents or that exists in suspension as a colloid.

Suspended-sediment concentration is the velocity-weighted concentration of suspended sediment in the sampled zone (from the water surface to a point approximately 0.3 ft above the bed) expressed as milligrams of dry sediment per liter of water-sediment mixture (mg/L).

Mean concentration is the time-weighted concentration of suspended sediment passing a stream section during a 24-hour day.

Suspended-sediment discharge (tons/day) is the rate at which dry mass of sediment passes a section of a stream or is the quantity of sediment, as measured by dry mass or volume, that passes a section in a given time. It is calculated in units of tons per day as follows: concentrations (mg/L) x discharge (ft³/s) x 0.0027.

Suspended-sediment load is a general term that refers to material in suspension. It is not synonymous with either discharge or concentration.

Total sediment discharge (tons/day) is the sum of the suspended-sediment discharge and the bed-load discharge. It is the total quantity of sediment, as measured by dry mass or volume, that passes a section during a given time.

Total-sediment load or total load is a term which refers to the total sediment (bed load plus suspended-sediment load) that is in transport. It is not synonymous with total-sediment discharge.

7-day 10-year low flow (7Q10) is the discharge at the 10-year recurrence interval taken from a frequency curve of annual values of the lowest mean discharge for 7 consecutive days (the 7-day low flow).

Sodium-adsorption-ratio (SAR) is the expression of relative activity of sodium ions in exchange reactions within soil and is an index of sodium or alkali hazard to the soil. Waters range in respect to sodium hazard from those which can be used for irrigation on almost all soils to those which are generally unsatisfactory for irrigation.

Solute is any substance that is dissolved in water.

Specific conductance is a measure of the ability of a water to conduct an electric current. It is expressed in microsiemens per centimeter at 25°C. Specific conductance is related to the type and concentration of ions in solution and can be used for approximating the dissolved-solids content of the water. Commonly, the concentration of dissolved solids (in milligrams per liter) is about 65 percent of the specific conductance (in micromhos). This relation is not constant from stream to stream, and it may vary in the same source with changes in the composition of the water.

Stage-discharge relation is the relation between gage height (stage) and volume of water per unit of time, flowing in a channel.

Streamflow is the discharge that occurs in a natural channel. Although the term "discharge" can be applied to the flow of a canal, the word "streamflow" uniquely describes the discharge in a surface stream course. The term "streamflow" is more general than "runoff" as streamflow may be applied to discharge whether or not it is affected by diversion or regulation.

Substrate is the physical surface upon which an organism lives.

Natural substrate refers to any naturally occurring emersed or submersed solid surface, such as a rock or tree, upon which an organism lives.

Artificial substrate is a device which is purposely placed in a stream or lake for colonization of organisms. The artificial substrate simplifies the community structure by standardizing the substrate from which each sample is taken. Examples of artificial substrates are basket samplers (made of wire cages filled with clean streamside rocks) and multiplate samplers (made of hardboard) for benthic organism collection, and plexiglass strips for periphyton.

Surface area of a lake is that area outlined on the latest U.S.G.S. topographic map as the boundary of the lake and measured by a planimeter in acres. In localities not covered by topographic maps, the areas are computed from the best maps available at the time planimeted. All areas shown are those for the stage when the planimeted map was made.

Surficial bed material is that part (0.1 to 0.2 ft) of the bed material that is sampled using U.S. Series Bed-Material Samplers.

Suspended (as used in tables of chemical analyses) refers to the amount (concentration) of the total concentration in a water-sediment mixture. It is associated with the material retained on a 0.45-micrometer filter.

Suspended, recoverable is the amount of a given constituent that is in solution after the part of a representative water-suspended sediment sample that is retained on a 0.45 um membrane filter has been digested by a method (usually using a dilute acid solution) that results in dissolution of only readily soluble substances. Complete dissolution of all the particulate matter is not achieved by the digestion treatment and thus the determination represents something less than the "total" amount (that is, less than 95 percent) of the constituent present in the sample. To achieve comparability of analytical data, equivalent digestion procedures are required of all laboratories performing such analyses because different digestion procedures are likely to produce different analytical results.

Determinations of "suspended, recoverable" constituents are made either by analyzing portions of the material collected on the filter or, more commonly, by difference, based on determinations of (1) dissolved and (2) total recoverable concentrations of the constituent.

Suspended, total is the total amount of a given constituent in the part of representative water-suspended sediment sample that is retained on a 0.45 um membrane filter. This term is used only when the analytical procedure assures measurement of at least 95 percent of the constituent determined. A knowledge of the expected form of the constituent in the sample, as well as the analytical methodology used, is required to determine when the results should be reported as "suspended, total."

Determinations of "suspended, total" constituents are made either by analyzing portions of the material collected on the filter or, more commonly, by difference, based on determinations of (1) dissolved and (2) total concentrations of the constituent.

Taxonomy is the division of biology concerned with the classification and naming of organisms. The classification of organisms is based upon a hierarchial scheme beginning with Kingdom and ending with Species at the base. The higher the classification level, the fewer features the organisms have in common. For example, the taxonomy of a particular mayfly, Hexagenia limbata, is the following:

| | |
|--------------|--------------------------|
| Kingdom..... | Animal |
| Phylum..... | Arthropoda |
| Class..... | Insecta |
| Order..... | Ephemeroptera |
| Family..... | Ephemeridae |
| Genus..... | <u>Hexagenia</u> |
| Species..... | <u>Hexagenia limbata</u> |

Thermograph is an instrument that continuously records variations of temperature on a chart. The more general term "temperature recorder" is used in the table heading and refers to any instrument that records temperature whether on a chart, a tape, or any other medium.

Time-weighted average is computed by multiplying the number of days in the sampling period by the concentrations of individual constituents for the corresponding period and dividing the sum of the products by the total number of days. A time-weighted average represents the composition of water that would be contained in a vessel or reservoir that had received equal quantities of water from the stream each day for the year.

Tons per acre-foot indicates the dry mass of dissolved solids in 1 acre-foot of water. It is computed by multiplying the concentration of the constituent, in milligrams per liter by 0.00136.

Tons per day (T/DAY) is the quantity of a substance in solution or suspension that passes a stream section during a 24-hour period.

Total is the total amount of a given constituent in a representative water-suspended sediment sample, regardless of the constituent's physical or chemical form. This term is used only when the analytical procedure assures measurement of at least 95 percent of the constituent present in both the dissolved and suspended phases of the sample. A knowledge of the expected form of the constituent in the sample, as well as the analytical methodology used, is required to judge when the results should be reported as "total." (Note that the word "total" does double duty here, indicating both that the sample consists of a water-suspended sediment mixture and that the analytical method determined all of the constituent in the sample.)

Total discharge is the total quantity of any individual constituent, as measured by dry mass or volume, that passes through a stream cross-section per unit of time. This term needs to be qualified, such as "total sediment discharge," "total chloride discharge," and so on.

Total, recoverable is the amount of a given constituent that is in solution after a representative water-suspended sediment sample has been digested by a method (usually using a dilute acid solution) that results in dissolution of only readily soluble substances. Complete dissolution of all particulate matter is not achieved by the digestion treatment, and thus the determination represents something less than the "total" amount (that is, less than 95 percent) of the constituent present in the dissolved and suspended phases of the sample. To achieve comparability of analytical data, equivalent digestion procedures are required of all laboratories performing such analyses, because different digestion procedures are likely to produce different analytical results.

Tritium Network is a network of stations which has been established to provide baseline information on the occurrence of tritium in the Nation's surface waters. In addition to the surface-water stations in the network, tritium data are also obtained at a number of precipitation stations. The purpose of the precipitation stations is to provide an estimate sufficient for hydrologic studies of the tritium input to the United States.

Water year in Geological Survey reports dealing with surface water supply is the 12-month period, October 1 through September 30. The water year is designated by the calendar year in which it ends and which includes 9 of the 12 months. Thus, the year ending September 30, 1980, is called the "1980 water year."

WDR is used as an abbreviation for "Water-Data Report" in the REVISED RECORDS paragraph to refer to State annual hydrologic-data reports (WRD was used as an abbreviation for "Water-Resources Data" in reports published prior to 1976).

Weighted average is used in this report to indicate discharge-weighted average. It is computed by multiplying the discharge for a sampling period by the concentrations of individual constituents for the corresponding period and dividing the sum of the products by the sum of the discharges. A discharge-weighted average approximates the composition of water that would be found in a reservoir containing all the water passing a given location during the water year after thorough mixing in the reservoir.

WSP is used as an abbreviation for "Water-Supply Paper" in references to previously published reports.

The U.S. Geological Survey publishes a series of manuals describing procedures for planning and conducting specialized work in water-resources investigations. The material is grouped under major subject headings called books and is further divided into sections and chapters. For example, Section A of Book 3 (Applications of Hydraulics) pertains to surface water. The chapter, the unit of publication, is limited to a narrow field of subject matter. This format permits flexibility in revision and publication as the need arises.

The reports listed below are for sale by the U.S. Geological Survey, Books and Open-File Reports Section, Federal Center, Box 25425, Denver, Colorado 80225 (authorized agent of the Superintendent of Documents, Government Printing Office). Prepayment is required. Remittance should be sent by check or money order payable to the U.S. Geological Survey. Prices are not included because they are subject to change. Current prices can be obtained by writing to the above address. When ordering or inquiring about prices for any of these publications, please give the title, book number, chapter number, and "U.S. Geological Survey Techniques of Water-Resources Investigations."

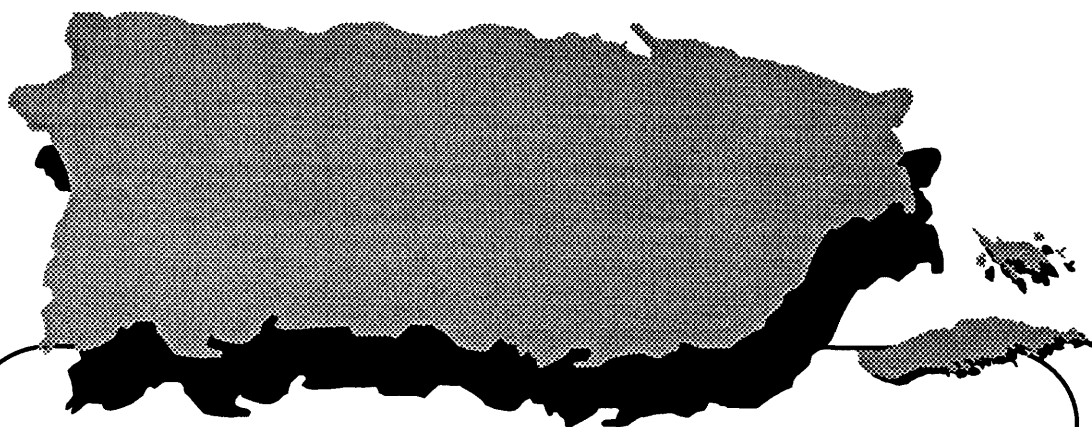
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**Surface and Quality-of-Water
Records
for Puerto Rico**

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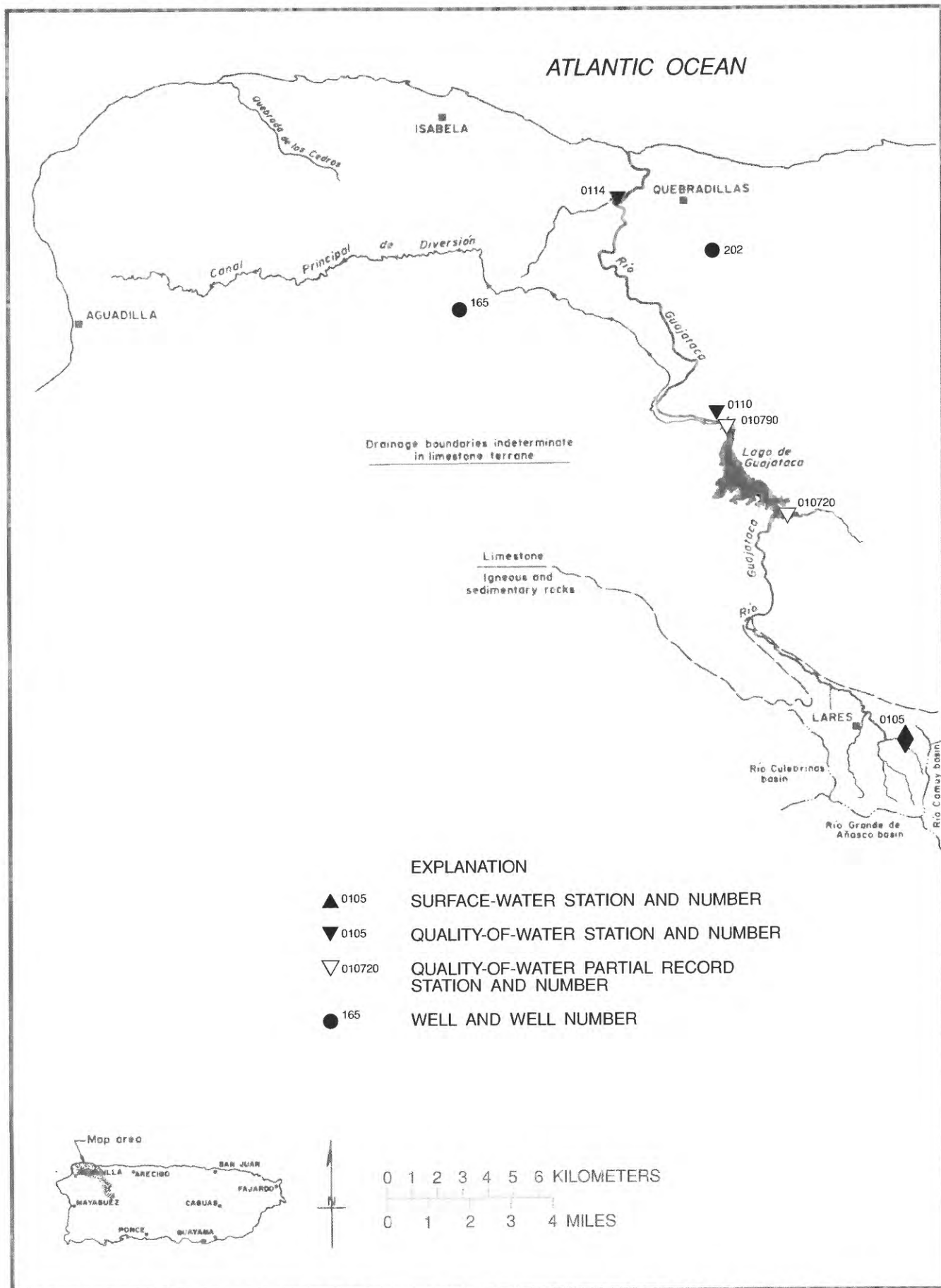


Figure 13.--Río Guajataca basin.

RIO GUAJATACA BASIN

50010500 RIO GUAJATACA AT LARES, PR

LOCATION.--Lat 18°18'01", long 66°52'24", Hydrologic Unit 21010001 at bridge on Highway 111, 0.1 mi (0.2 km) upstream from Quebrada Anón, and 0.4 mi (0.6 km) east of Lares.

DRAINAGE AREA.--3.16 mi² (8.18 km²).

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--February 1959 to February 1962 (annual low-flow measurements only), January 1963 to April 1969 (monthly measurements only), May 1969 to December 1970 (February to May 1971 and March 1974 to November 1989, monthly measurements only), December 1989 to current year.

GAGE.--Water-stage recorder and crest-stage gage. Elevation of gage is 935 ft (285 m), from topographic map.

REMARKS.--Records poor. Gage-height and precipitation satellite telemetry at station. Small diversion above station for sewage treatment plant; effluent re-enters stream below station.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993
DAILY MEAN VALUES

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|------|-------|-------|
| 1 | 22 | 29 | 4.5 | 1.9 | 5.6 | 1.1 | e3.7 | 3.1 | 14 | 3.1 | 2.3 | 12 |
| 2 | 12 | 17 | 3.9 | 1.6 | 2.5 | 1.4 | 3.0 | 4.1 | 9.7 | 3.1 | 2.3 | 3.9 |
| 3 | 7.9 | 13 | 4.0 | 1.6 | 2.0 | 1.1 | 3.4 | 42 | 9.0 | 3.0 | 2.4 | 1.7 |
| 4 | 6.3 | 12 | 3.3 | 1.4 | 1.7 | 1.3 | 2.3 | 12 | 7.4 | 3.0 | 2.2 | 2.4 |
| 5 | 5.9 | 10 | 3.0 | 1.6 | 1.8 | .92 | 1.9 | 5.3 | 7.1 | 2.6 | 2.0 | 16 |
| 6 | 5.4 | 9.2 | 2.8 | 1.4 | 1.6 | .88 | 3.6 | 35 | 7.7 | 2.7 | 3.1 | 30 |
| 7 | 5.0 | 8.2 | 2.6 | 1.4 | 1.6 | .82 | 1.8 | 48 | 5.5 | 2.3 | 2.4 | 37 |
| 8 | 5.3 | 7.6 | 2.4 | 1.4 | 1.6 | .76 | 1.9 | 24 | 9.8 | 2.7 | 1.9 | 14 |
| 9 | 4.5 | 7.1 | 2.4 | 1.2 | 1.5 | .82 | 1.5 | 17 | 22 | 2.2 | 1.9 | 6.1 |
| 10 | 14 | 7.1 | 2.7 | 1.1 | 1.5 | .82 | 1.5 | 10 | 7.1 | 2.2 | 2.2 | 8.7 |
| 11 | 6.6 | 6.4 | 2.2 | 1.1 | 1.5 | e.90 | 12 | 7.9 | 8.9 | 2.3 | 3.2 | 4.2 |
| 12 | 4.9 | 5.9 | 2.1 | 1.1 | 1.5 | e1.2 | 3.9 | 6.5 | 13 | 2.7 | 2.0 | 3.0 |
| 13 | 4.4 | 5.7 | 11 | 1.1 | 1.4 | e.80 | 19 | 4.9 | 8.3 | 2.0 | 1.7 | 3.6 |
| 14 | 4.0 | 11 | 7.8 | 1.0 | 1.4 | e.84 | 11 | 4.8 | 5.8 | 2.7 | 1.6 | 2.2 |
| 15 | 3.8 | 7.2 | 4.7 | 1.1 | 1.3 | e.86 | 20 | 4.3 | 5.0 | 2.8 | 1.5 | 1.9 |
| 16 | 23 | 5.8 | 2.5 | 1.1 | 1.3 | e.82 | 6.2 | 15 | 5.6 | 3.3 | 14 | 1.5 |
| 17 | 23 | 5.8 | 2.8 | 1.2 | 1.4 | e.86 | 11 | 6.2 | 4.6 | 3.2 | 2.6 | 1.4 |
| 18 | 33 | 12 | 2.4 | 1.2 | 1.3 | e.85 | 18 | 4.8 | 4.3 | 2.7 | 2.1 | 1.5 |
| 19 | 27 | 5.7 | 2.2 | 1.2 | 1.3 | e.83 | 5.1 | 4.3 | 7.6 | 2.8 | 6.3 | 6.1 |
| 20 | 19 | 4.6 | 3.0 | 1.1 | 2.3 | e.80 | 7.2 | 6.0 | 5.4 | 2.7 | 2.0 | 1.8 |
| 21 | 14 | 4.4 | 2.7 | 1.7 | 1.7 | e.82 | 14 | 3.5 | 4.3 | 2.5 | 1.8 | 1.0 |
| 22 | 14 | 4.3 | 2.7 | 2.0 | 1.2 | e.82 | 18 | 14 | 4.1 | 9.1 | 1.8 | 1.9 |
| 23 | 15 | 3.9 | 2.1 | .94 | 1.5 | e.78 | 13 | 15 | 4.0 | 3.6 | 1.7 | 2.4 |
| 24 | 14 | 3.8 | 1.9 | .86 | .99 | e.79 | 6.1 | 5.6 | 4.3 | 4.0 | 1.7 | 1.7 |
| 25 | 11 | 3.8 | 1.8 | .85 | 1.0 | e.81 | 5.6 | 4.3 | 3.8 | 1.9 | 10 | 2.0 |
| 26 | 10 | 4.9 | 2.3 | 1.2 | .92 | e.85 | 3.7 | 3.8 | 3.5 | 6.8 | 3.8 | 3.5 |
| 27 | 9.5 | 6.1 | 1.9 | .94 | .96 | e.80 | 3.0 | 3.5 | 3.5 | 2.4 | 2.0 | 1.5 |
| 28 | 8.5 | 3.9 | 1.7 | 1.8 | 1.0 | e1.5 | 11 | 22 | 3.2 | 1.7 | 4.8 | 2.8 |
| 29 | 22 | 8.8 | 13 | 7.3 | --- | e1.5 | 12 | 6.2 | 11 | 2.6 | 9.1 | 1.4 |
| 30 | 25 | 7.6 | 4.1 | 3.4 | --- | e.96 | 4.5 | 27 | 4.5 | 2.3 | 14 | 1.2 |
| 31 | 33 | --- | 2.4 | 2.3 | --- | e5.6 | --- | 27 | --- | 2.2 | 16 | --- |
| TOTAL | 413.0 | 241.8 | 108.9 | 49.09 | 45.37 | 33.91 | 228.9 | 397.1 | 214.0 | 93.2 | 126.4 | 178.4 |
| MEAN | 13.3 | 8.06 | 3.51 | 1.58 | 1.62 | 1.09 | 7.63 | 12.8 | 7.13 | 3.01 | 4.08 | 5.95 |
| MAX | 33 | 29 | 13 | 7.3 | 5.6 | 5.6 | 20 | 48 | 22 | 9.1 | 16 | 37 |
| MIN | 3.8 | 3.8 | 1.7 | .85 | .92 | .76 | 1.5 | 3.1 | 3.2 | 1.7 | 1.5 | 1.0 |
| AC-FT | 819 | 480 | 216 | 97 | 90 | 67 | 454 | 788 | 424 | 185 | 251 | 354 |
| CFSM | 4.22 | 2.55 | 1.11 | .50 | .51 | .35 | 2.41 | 4.05 | 2.26 | .95 | 1.29 | 1.88 |
| IN. | 4.86 | 2.85 | 1.28 | .58 | .53 | .40 | 2.69 | 4.67 | 2.52 | 1.10 | 1.49 | 2.10 |

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1969 - 1993, BY WATER YEAR (WY)

| | MEAN | 18.6 | 10.1 | 3.72 | 2.53 | 2.20 | 2.27 | 4.30 | 9.87 | 7.00 | 4.22 | 5.13 | 10.7 |
|------|------|------|------|------|------|------|------|------|------|------|------|------|------|
| MAX | 33.7 | 16.7 | 7.31 | 6.83 | 5.37 | 6.38 | 7.63 | 12.8 | 9.73 | 9.85 | 9.88 | 15.7 | |
| (WY) | 1991 | 1971 | 1971 | 1971 | 1971 | 1971 | 1993 | 1993 | 1970 | 1969 | 1991 | 1990 | |
| MIN | 11.9 | 6.51 | 1.35 | .66 | .93 | 1.01 | 1.31 | 3.86 | 3.18 | 2.03 | 3.34 | 5.95 | |
| (WY) | 1971 | 1991 | 1991 | 1991 | 1992 | 1970 | 1992 | 1992 | 1992 | 1990 | 1970 | 1993 | |

SUMMARY STATISTICS

FOR 1992 CALENDAR YEAR

FOR 1993 WATER YEAR

WATER YEARS 1969 - 1993

| | | | |
|--------------------------|---------|---------|-------|
| ANNUAL TOTAL | 1586.45 | 2130.07 | |
| ANNUAL MEAN | 4.33 | 5.84 | 6.20 |
| HIGHEST ANNUAL MEAN | | | 8.05 |
| LOWEST ANNUAL MEAN | | | 4.70 |
| HIGHEST DAILY MEAN | 33 | Oct 18 | 216 |
| LOWEST DAILY MEAN | .61 | Mar 23 | .47 |
| ANNUAL SEVEN-DAY MINIMUM | .67 | Mar 17 | .51 |
| INSTANTANEOUS PEAK FLOW | | | 5300 |
| INSTANTANEOUS PEAK STAGE | | | 21.30 |
| ANNUAL RUNOFF (AC-FT) | 3150 | 4220 | 4490 |
| ANNUAL RUNOFF (CFSM) | 1.37 | 1.85 | 1.96 |
| ANNUAL RUNOFF (INCHES) | 18.68 | 25.08 | 26.67 |
| 10 PERCENT EXCEEDS | 10 | 14 | 14 |
| 50 PERCENT EXCEEDS | 2.4 | 3.2 | 3.6 |
| 90 PERCENT EXCEEDS | .88 | 1.1 | .94 |

e Estimated

RIO GUAJATACA BASIN

50010500 RIO GUAJATACA AT LARES, PR

WATER-QUALITY RECORDS

LOCATION.--Lat 18°18'01", long 66°52'24", at bridge on Highway 111 (km 32.9), 0.1 mi (0.2 km) upstream from Quebrada Anon, and 0.4 mi (0.6 km) northeast of Lares plaza.

DRAINAGE AREA.--3.16 mi² (8.18 km²).

PERIOD OF RECORD.--Water years 1958-71, 1974 to current year.

WATER-QUALITY DATA, WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993

| DATE | TIME | DIS-CHARGE, INST. CUBIC FEET PER SECOND | SPE-CIFIC CON-DUCT-ANCE (US/CM) | PH WATER WHOLE FIELD (STAND-ARD UNITS) | TEMPER-ATURE WATER (DEG C) | TUR-BID-ITY (NTU) | OXYGEN, DIS-SOLVED (MG/L) | OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION) | OXYGEN DEMAND, CHEM-ICAL (HIGH LEVEL) (MG/L) | COLI-FORM, FECAL, UM-MF (COLS./100 ML) | STREP-TOCOCCI (COLS. PER 100 ML) |
|-----------|------|---|---------------------------------|--|----------------------------|-------------------|---------------------------|---|--|--|----------------------------------|
| OCT 1992 | | | | | | | | | | | |
| 30... | 1115 | 8.1 | 215 | 6.9 | 22.5 | 32 | 4.8 | 56 | 13 | K2200 | 2100 |
| DEC 15... | 0940 | 4.3 | 212 | 7.3 | 22.0 | 11 | 4.8 | 56 | 20 | 25000 | 47000 |
| FEB 1993 | | | | | | | | | | | |
| 17... | 0945 | 1.2 | 233 | 7.4 | 21.0 | 2.1 | 4.4 | 50 | 11 | K620 | 2400 |
| APR 15... | 1035 | 3.4 | 254 | 7.2 | 21.0 | 49 | 7.8 | 91 | 19 | K18000 | K41000 |
| JUN 17... | 0855 | 4.8 | 236 | 7.1 | 22.5 | 23 | 7.6 | 87 | <10 | K1700 | 3500 |
| SEP 22... | 1115 | 1.0 | 258 | 7.3 | 23.5 | 1.6 | 7.3 | 85 | 16 | 850 | 2000 |

| DATE | HARD-NESS TOTAL (MG/L AS CACO3) | HARD-NESS NONCARB WH WAT TOT FLD (MG/L AS CACO3) | CALCIUM DIS-SOLVED (MG/L AS CA) | MAGNE-SIUM, DIS-SOLVED (MG/L AS MG) | SODIUM, DIS-SOLVED (MG/L AS NA) | SODIUM AD-SORP-TION RATIO | POTAS-SIUM, DIS-SOLVED (MG/L AS K) | ALKA-LINITY WAT WH TOT FET (MG/L AS CACO3) | SULFIDE TOTAL (MG/L AS S) | SULFATE DIS-SOLVED (MG/L AS SO4) | CHLO-RIDE, DIS-SOLVED (MG/L AS CL) |
|-----------|---------------------------------|--|---------------------------------|-------------------------------------|---------------------------------|---------------------------|------------------------------------|--|---------------------------|----------------------------------|------------------------------------|
| OCT 1992 | | | | | | | | | | | |
| 30... | 73 | 2 | 19 | 6.3 | 10 | 0.6 | 3.4 | 78 | <0.5 | 11 | 10 |
| DEC 15... | -- | -- | -- | -- | -- | -- | -- | 74 | -- | -- | -- |
| FEB 1993 | | | | | | | | | | | |
| 17... | -- | -- | -- | -- | -- | -- | -- | 100 | -- | -- | -- |
| APR 15... | 100 | 5 | 32 | 5.8 | 11 | 0.5 | 3.5 | 95 | 1.6 | 15 | 11 |
| JUN 17... | -- | -- | -- | -- | -- | -- | -- | 89 | -- | -- | -- |
| SEP 22... | 98 | 4 | 28 | 6.5 | 13 | 0.6 | 2.8 | 90 | -- | 12 | 10 |

| DATE | FLUO-RIDE, DIS-SOLVED (MG/L AS F) | SILICA, DIS-SOLVED (MG/L AS SIO2) | SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L) | SOLIDS, DIS-SOLVED (TONS PER DAY) | RESIDUE TOTAL AT 105 DEG. C, SUS-PENDED (MG/L) | NITRO-GEN, NITRATE TOTAL (MG/L AS N) | NITRO-GEN, NITRITE TOTAL (MG/L AS N) | NITRO-GEN, NO2+NO3 TOTAL (MG/L AS N) | NITRO-GEN, AMMONIA TOTAL (MG/L AS N) | NITRO-GEN, ORGANIC TOTAL (MG/L AS N) |
|-----------|-----------------------------------|-----------------------------------|---|-----------------------------------|--|--------------------------------------|--------------------------------------|--------------------------------------|--------------------------------------|--------------------------------------|
| OCT 1992 | | | | | | | | | | |
| 30... | <0.10 | 25 | 126 | 2.76 | 56 | 1.99 | 0.010 | 2.00 | 0.020 | -- |
| DEC 15... | -- | -- | -- | -- | 6 | 1.67 | 0.030 | 1.70 | 0.060 | 0.74 |
| FEB 1993 | | | | | | | | | | |
| 17... | -- | -- | -- | -- | 3 | 1.89 | 0.010 | 1.90 | 0.160 | 0.94 |
| APR 15... | <0.10 | 22 | 157 | 1.44 | 40 | 1.15 | 0.050 | 1.20 | 0.140 | 0.36 |
| JUN 17... | -- | -- | -- | -- | 12 | 0.68 | 0.020 | 0.70 | 0.030 | 0.17 |
| SEP 22... | 0.20 | 31 | 170 | 0.46 | 2 | 1.19 | 0.010 | 1.20 | 0.030 | 0.77 |

K = non-ideal count

RIO GUAJATACA BASIN

50010500 RIO GUAJATACA AT LARES, PR--Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993

| DATE | NITRO- GEN, AM- MONIA + ORGANIC TOTAL (MG/L AS N) | NITRO- GEN, TOTAL (MG/L AS N) | NITRO- GEN, TOTAL (MG/L AS NO3) | PHOS- PHORUS TOTAL (MG/L AS P) | ARSENIC TOTAL (UG/L AS AS) | BARIUM, TOTAL RECOV- ERABLE (UG/L AS BA) | BORON, TOTAL RECOV- ERABLE (UG/L AS B) | CADMIUM TOTAL RECOV- ERABLE (UG/L AS CD) | CHRO- MIUM, TOTAL RECOV- ERABLE (UG/L AS CR) | COPPER, TOTAL RECOV- ERABLE (UG/L AS CU) |
|-------------------|---|---|---|--|-------------------------------------|---|---|---|--|---|
| OCT 1992 30... | <0.20 | 2.0 | 10 | 0.060 | <1 | <100 | <10 | <1 | <1 | 20 |
| DEC 15... | 0.80 | 2.5 | 11 | 0.060 | -- | -- | -- | -- | -- | -- |
| FEB 1993 17... | 1.1 | 2.3 | 13 | 0.060 | -- | -- | -- | -- | -- | -- |
| APR 15... | 0.40 | 2.1 | 10 | 0.090 | 1 | <100 | 30 | <1 | <1 | 10 |
| JUN 17... | 0.30 | 0.90 | 4 | 0.060 | -- | -- | -- | -- | -- | -- |
| SEP 22... | 0.80 | 1.9 | 12 | 0.070 | -- | -- | -- | -- | -- | -- |

[illegible]

RIO GUAJATACA BASIN

50011000 CANAL PRINCIPAL DE DIVERSIONES AT LAGO DE GUAJATACA, PR

WATER-QUALITY RECORDS

LOCATION.--Lat 18°24'02", long 66°55'27", off Highway 476 at Lago Guajataca outlet, 3.0 mi (4.8 km) southwest of Segunda Unidad Baldorioty de Castro, and 5.3 mi (8.5 km) south of Quebradillas Plaza.

DRAINAGE AREA.--Indeterminate.

PERIOD OF RECORD.--Water years 1958-64, 1974 to current year.

WATER-QUALITY DATA, WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993

| DATE | TIME | DIS-CHARGE, INST. CUBIC FEET PER SECOND | SPE-CIFIC CON-DUCT-ANCE (US/CM) | PH WATER WHOLE FIELD (STAND-ARD UNITS) | TEMPER-ATURE WATER (DEG C) | TUR-BID-ITY (NTU) | OXYGEN, DIS-SOLVED (MG/L) | OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION) | OXYGEN DEMAND, CHEM-ICAL (HIGH LEVEL) (MG/L) | COLI-FORM, FECAL, 0.45 UM-MF (COLS./100 ML) | STREP-TOCOCCI, FECAL, (COLS. PER 100 ML) |
|-----------|------|---|---------------------------------|--|----------------------------|-------------------|---------------------------|---|--|---|--|
| OCT 1992 | | | | | | | | | | | |
| 27... | 1105 | E55 | 317 | 7.1 | 27.0 | 1.2 | 0.2 | 2 | 12 | 34 | 29 |
| DEC 16... | 1245 | E55 | 315 | 7.1 | 26.0 | 0.80 | 1.2 | 58 | 12 | K4 | K8 |
| FEB 1993 | | | | | | | | | | | |
| 23... | 1240 | E55 | 312 | 7.4 | 25.5 | 0.70 | 1.6 | 20 | 67 | 10 | 10 |
| APR 27... | 1450 | E55 | 293 | 6.7 | 24.5 | 1.4 | 0.5 | 36 | 29 | K160 | K110 |
| JUN 15... | 1200 | E55 | 310 | 7.0 | 25.0 | 1.0 | 0.4 | 18 | <10 | 40 | 94 |
| SEP 10... | 1145 | E55 | 330 | 7.4 | 26.0 | 1.4 | 0.7 | 21 | <10 | 28 | 30 |

| DATE | HARD-NESS TOTAL (MG/L AS CaCO3) | HARD-NESS NONCARB WH WAT TOT FLD MG/L AS CaCO3 | CALCIUM DIS-SOLVED (MG/L AS Ca) | MAGNE-SIUM, DIS-SOLVED (MG/L AS Mg) | SODIUM, DIS-SOLVED (MG/L AS Na) | SODIUM AD-SORP-TION RATIO | POTAS-SIUM, DIS-SOLVED (MG/L AS K) | ALKA-LINITY WAT WH TOT FET FIELD MG/L AS CaCO3 | SULFIDE TOTAL (MG/L AS S) | SULFATE DIS-SOLVED (MG/L AS SO4) | CHLO-RIDE, DIS-SOLVED (MG/L AS Cl) |
|-----------|---------------------------------|--|---------------------------------|-------------------------------------|---------------------------------|---------------------------|------------------------------------|--|---------------------------|----------------------------------|------------------------------------|
| OCT 1992 | | | | | | | | | | | |
| 27... | 130 | 4 | 48 | 3.3 | 5.4 | 0.2 | 1.8 | 160 | <0.5 | 9.7 | 6.6 |
| DEC 16... | -- | -- | -- | -- | -- | -- | -- | 78 | -- | -- | -- |
| FEB 1993 | | | | | | | | | | | |
| 23... | -- | -- | -- | -- | -- | -- | -- | 140 | -- | -- | -- |
| APR 27... | 140 | 12 | 50 | 3.5 | 5.6 | 0.2 | 2.1 | 180 | 0.8 | 8.4 | 8.0 |
| JUN 15... | -- | -- | -- | -- | -- | -- | -- | 140 | -- | -- | -- |
| SEP 10... | 140 | 11 | 50 | 4.2 | 5.7 | 0.2 | 1.9 | 130 | -- | 6.3 | 7.9 |

| DATE | FLUO-RIDE, DIS-SOLVED (MG/L AS F) | SILICA, DIS-SOLVED (MG/L AS SiO2) | SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L) | SOLIDS, DIS-SOLVED (TONS PER DAY) | RESIDUE TOTAL AT 105 DEG. C, SUS-PENDED (MG/L) | NITRO-GEN, NITRATE TOTAL (MG/L AS N) | NITRO-GEN, NITRITE TOTAL (MG/L AS N) | NITRO-GEN, NO2+NO3 TOTAL (MG/L AS N) | NITRO-GEN, AMMONIA TOTAL (MG/L AS N) | NITRO-GEN, ORGANIC TOTAL (MG/L AS N) |
|-----------|-----------------------------------|-----------------------------------|---|-----------------------------------|--|--------------------------------------|--------------------------------------|--------------------------------------|--------------------------------------|--------------------------------------|
| OCT 1992 | | | | | | | | | | |
| 27... | <0.10 | 7.7 | 160 | -- | 4 | -- | <0.010 | <0.050 | 0.330 | 0.27 |
| DEC 16... | -- | -- | -- | -- | <1 | 0.090 | 0.010 | 0.100 | 0.360 | 0.24 |
| FEB 1993 | | | | | | | | | | |
| 23... | -- | -- | -- | -- | <1 | 0.090 | 0.010 | 0.100 | 0.080 | 0.42 |
| APR 27... | 0.10 | 4.5 | 190 | -- | 1 | 0.090 | 0.010 | 0.100 | 0.030 | 0.57 |
| JUN 15... | -- | -- | -- | -- | 11 | 0.090 | 0.010 | 0.100 | 0.060 | 0.24 |
| SEP 10... | 0.10 | 7.2 | 174 | -- | 5 | 1.49 | 0.010 | 1.50 | 0.010 | 0.89 |

E = estimate

K = non-ideal count

RIO GUAJATACA BASIN

50011000 CANAL PRINCIPAL DE DIVERSIONES AT LAGO DE GUAJATACA, PR--Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993

| DATE | NITRO- GEN, AM- MONIA + ORGANIC TOTAL (MG/L AS N) | NITRO- GEN, TOTAL (MG/L AS N) | NITRO- GEN, TOTAL (MG/L AS NO3) | PHOS- PHORUS TOTAL (MG/L AS P) | ARSENIC TOTAL (UG/L AS AS) | BARIUM, TOTAL RECOV- ERABLE (UG/L AS BA) | BORON, TOTAL RECOV- ERABLE (UG/L AS B) | CADMIUM TOTAL RECOV- ERABLE (UG/L AS CD) | CHRO- MIUM, TOTAL RECOV- ERABLE (UG/L AS CR) | COPPER, TOTAL RECOV- ERABLE (UG/L AS CU) |
|-----------|---|---|---|--|-------------------------------------|---|---|---|--|---|
| OCT 1992 | | | | | | | | | | |
| 27... | 0.60 | 0.60 | 5.3 | 0.030 | <1 | <100 | 40 | <1 | <1 | <10 |
| DEC 16... | 0.60 | 0.90 | 4.0 | 0.020 | -- | -- | -- | -- | -- | -- |
| FEB 1993 | | | | | | | | | | |
| 23... | 0.50 | 1.6 | 8.9 | 0.010 | -- | -- | -- | -- | -- | -- |
| APR 27... | 0.60 | 0.50 | 7.1 | 0.030 | <1 | <100 | 20 | <1 | <1 | <10 |
| JUN 15... | 0.30 | 0.20 | 9.3 | 0.030 | -- | -- | -- | -- | -- | -- |
| SEP 10... | 0.90 | 0.80 | 8.9 | 0.010 | -- | -- | -- | -- | -- | -- |

[illegible]

RIO GUAJATACA BASIN

50011400 RIO GUAJATACA ABOVE MOUTH NEAR QUEBRADILLAS, PR

WATER-QUALITY RECORDS

LOCATION.--Lat 18°28'31", long 66°57'46", Hydrologic Unit 21010002, on left bank at ford 1.7 mi (2.7 km) upstream from bridge on highway 2, 1.6 mi (2.6 km) west of Quebradillas plaza, 2.1 mi (3.4 km) upstream from Atlantic Ocean, and 6.6 mi (10.6 km) downstream from Lago Guajataca.

DRAINAGE AREA.--Indeterminate

PERIOD OF RECORD.--Water years 1969 to current year.

WATER-QUALITY DATA, WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993

| DATE | TIME | DIS-CHARGE, INST. CUBIC FEET PER SECOND | SPE-CIFIC CON-DUCT-ANCE (US/CM) | PH WATER WHOLE FIELD (STAND-ARD UNITS) | TEMPER-ATURE WATER (DEG C) | TUR-BID-ITY (NTU) | OXYGEN, DIS-SOLVED (MG/L) | OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION) | OXYGEN DEMAND, CHEM-ICAL (HIGH LEVEL) (MG/L) | COLI-FORM, FECAL, 0.45 UM-MF (COLS./100 ML) | STREP-TOCOCCI, FECAL, (COLS. PER 100 ML) |
|-----------|------|---|---------------------------------|--|----------------------------|-------------------|---------------------------|---|--|---|--|
| OCT 1992 | | | | | | | | | | | |
| 28... | 1320 | 33 | 393 | 7.9 | 26.5 | 0.50 | 7.2 | 105 | <10 | K140 | 380 |
| DEC 28... | 0830 | 45 | 391 | 7.3 | 23.5 | 0.50 | 5.8 | 68 | 37 | 510 | 1500 |
| FEB 1993 | | | | | | | | | | | |
| 24... | 1240 | 7.1 | 475 | 7.4 | 25.0 | 0.50 | 4.4 | 53 | <10 | 200 | 170 |
| MAY 06... | 0910 | 140 | 318 | 7.9 | 24.5 | 6.9 | 7.8 | 112 | 14 | 70 | 310 |
| JUN 16... | 1230 | 22 | 425 | 7.2 | 25.0 | 6.5 | 7.2 | 89 | <10 | K62000 | 38000 |
| SEP 24... | 0940 | 9.8 | 430 | 7.5 | 25.5 | 0.40 | 4.4 | 53 | <10 | 220 | 2100 |

| DATE | HARD-NESS TOTAL (MG/L AS CaCO3) | HARD-NESS NONCARB WH WAT TOT FLD MG/L AS CaCO3 | CALCIUM DIS-SOLVED (MG/L AS Ca) | MAGNE-SIUM, DIS-SOLVED (MG/L AS Mg) | SODIUM, DIS-SOLVED (MG/L AS Na) | SODIUM AD-SORP-TION RATIO | POTAS-SIUM, DIS-SOLVED (MG/L AS K) | ALKA-LINITY WAT WH TOT FET FIELD MG/L AS CaCO3 | SULFIDE TOTAL (MG/L AS S) | SULFATE DIS-SOLVED (MG/L AS SO4) | CHLO-RIDE, DIS-SOLVED (MG/L AS Cl) |
|-----------|---------------------------------|--|---------------------------------|-------------------------------------|---------------------------------|---------------------------|------------------------------------|--|---------------------------|----------------------------------|------------------------------------|
| OCT 1992 | | | | | | | | | | | |
| 28... | 250 | 25 | 72 | 7.2 | 15 | 0.5 | 1.1 | 180 | <0.5 | 9.4 | 26 |
| DEC 28... | -- | -- | -- | -- | -- | -- | -- | 180 | -- | -- | -- |
| FEB 1993 | | | | | | | | | | | |
| 24... | -- | -- | -- | -- | -- | -- | -- | 210 | -- | -- | -- |
| MAY 06... | 150 | 3 | 54 | 3.6 | 5.9 | 0.2 | 1.8 | 140 | <0.5 | 8.7 | 9.1 |
| JUN 16... | -- | -- | -- | -- | -- | -- | -- | 180 | -- | -- | -- |
| SEP 24... | 210 | 11 | 74 | 6.6 | 11 | 0.3 | 2.2 | 170 | -- | 6.3 | 18 |

| DATE | FLUO-RIDE, DIS-SOLVED (MG/L AS F) | SILICA, DIS-SOLVED (MG/L AS SiO2) | SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L) | SOLIDS, DIS-SOLVED (TONS PER DAY) | RESIDUE TOTAL AT 105 DEG. C, SUS-PENDED (MG/L) | NITRO-GEN, NITRATE TOTAL (MG/L AS N) | NITRO-GEN, NITRITE TOTAL (MG/L AS N) | NITRO-GEN, NO2+NO3 TOTAL (MG/L AS N) | NITRO-GEN, AMMONIA TOTAL (MG/L AS N) | NITRO-GEN, ORGANIC TOTAL (MG/L AS N) |
|-----------|-----------------------------------|-----------------------------------|---|-----------------------------------|--|--------------------------------------|--------------------------------------|--------------------------------------|--------------------------------------|--------------------------------------|
| OCT 1992 | | | | | | | | | | |
| 28... | <0.10 | 6.6 | 253 | 22.5 | <1 | 0.720 | 0.010 | 0.720 | 0.020 | 0.18 |
| DEC 28... | -- | -- | -- | -- | 6 | 1.49 | 0.010 | 1.50 | 0.220 | 0.68 |
| FEB 1993 | | | | | | | | | | |
| 24... | -- | -- | -- | -- | <1 | 2.29 | 0.010 | 2.30 | 0.010 | 0.19 |
| MAY 06... | 0.10 | 4.2 | 171 | 64.8 | 7 | 2.49 | 0.010 | 2.50 | 0.030 | 0.27 |
| JUN 16... | -- | -- | -- | -- | 20 | 1.79 | 0.010 | 1.80 | 0.010 | 0.19 |
| SEP 24... | 0.30 | 6.7 | 227 | 6.0 | 5 | 0.09 | 0.010 | 1.00 | 0.020 | 1.8 |

K = non-ideal count

RIO GUAJATACA BASIN

50011400 RIO GUAJATACA ABOVE MOUTH NEAR QUEBRADILLAS, PR--Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993

| DATE | NITRO- GEN, AM- MONIA + ORGANIC TOTAL (MG/L AS N) | NITRO- GEN, TOTAL (MG/L AS N) | NITRO- GEN, TOTAL (MG/L AS NO3) | PHOS- PHORUS TOTAL (MG/L AS P) | ARSENIC TOTAL (UG/L AS AS) | BARIUM, TOTAL RECOV- ERABLE (UG/L AS BA) | BORON, TOTAL RECOV- ERABLE (UG/L AS B) | CADMIUM TOTAL RECOV- ERABLE (UG/L AS CD) | CHRO- MIUM, TOTAL RECOV- ERABLE (UG/L AS CR) | COPPER, TOTAL RECOV- ERABLE (UG/L AS CU) |
|-----------|---|---|---|--|-------------------------------------|---|---|---|--|---|
| OCT 28... | 0.20 | 2.2 | 15 | 0.010 | 1 | <100 | <10 | <1 | <1 | <10 |
| DEC 28... | 0.90 | 3.3 | 12 | 0.030 | -- | -- | -- | -- | -- | -- |
| FEB 24... | 0.20 | 0.40 | 15 | 0.010 | -- | -- | -- | -- | -- | -- |
| MAY 06... | 0.30 | 0.30 | 10 | 0.040 | 1 | <100 | 20 | <1 | <1 | <10 |
| JUN 16... | 0.20 | 2.0 | 9.7 | 0.020 | -- | -- | -- | -- | -- | -- |
| SEP 24... | 2.0 | 1.8 | 11 | 0.020 | -- | -- | -- | -- | -- | -- |

[illegible]

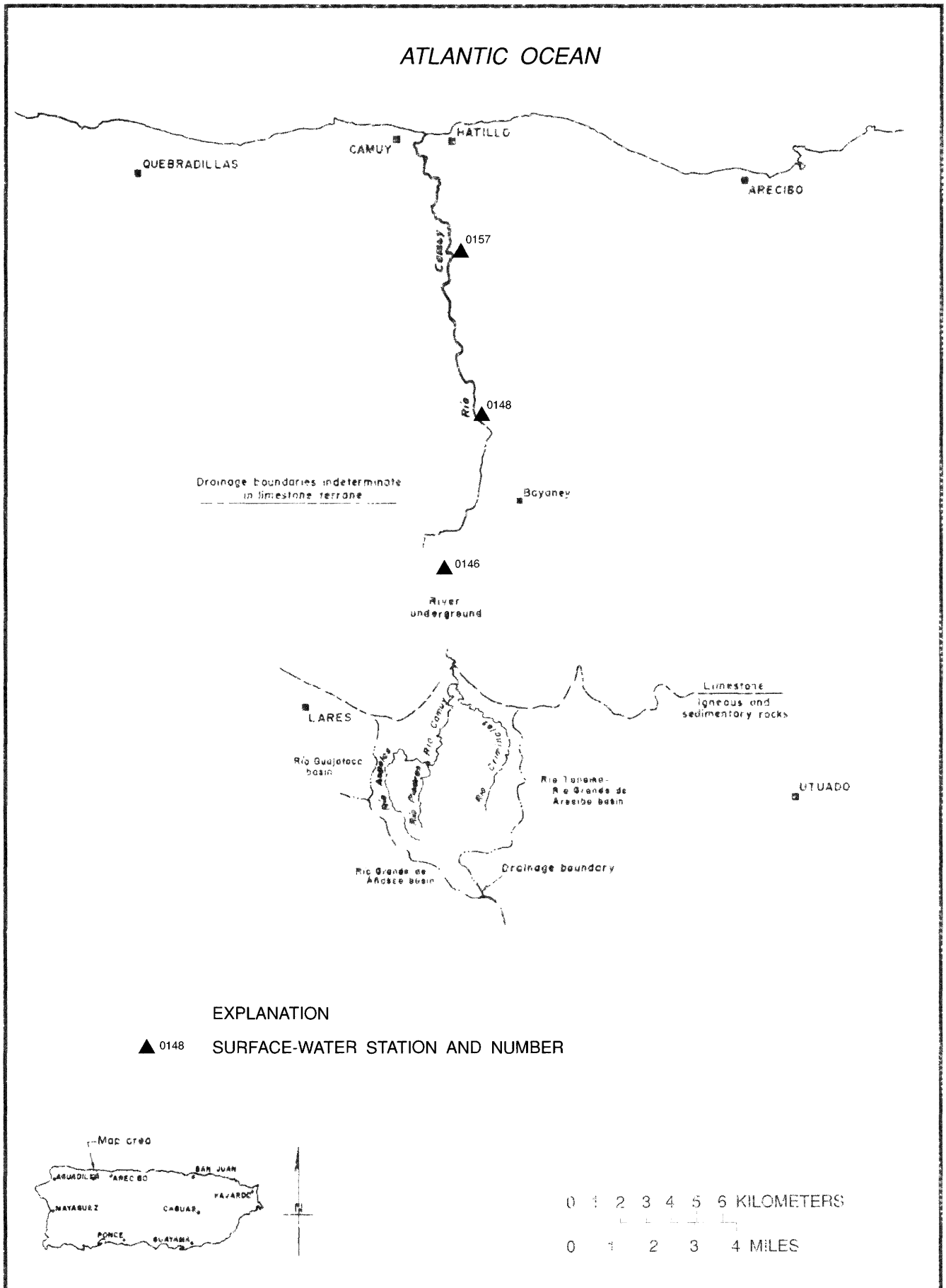


Figure 14.--Río Camuy basin.

RIO CAMUY BASIN

50014600 RIO CAMUY AT TRES PUEBLOS SINKHOLE, PR

LOCATION.--Lat 18°20'42", long 66°49'29", Hydrologic Unit 21010002, at Parque de las Cavernas del Río Camuy, 1.8 mi (2.9 km) southeast from Escuela Segunda Unidad de Santiago Palmer, 4.7 mi (7.6 km) west from Observatorio de Arecibo and 4.8 mi (7.7 km) northeast from Plaza de Lares.

DRAINAGE AREA.--Indeterminate.

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--June 1990 to current year.

GAGE.--Water-stage recorder and crest-stage gage. Datum of gage is 612.21 ft (186.602 m), above mean sea level.

REMARKS.--Records fair except those for estimated daily discharges, which are poor. Gage-height and precipitation satellite telemetry at station.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993
DAILY MEAN VALUES

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|-------|------|------|------|------|------|------|------|------|------|------|------|------|
| 1 | 92 | 100 | 50 | 32 | 44 | 20 | 26 | 33 | 71 | 38 | 21 | 80 |
| 2 | 68 | 70 | 43 | 31 | 33 | 20 | 22 | 31 | 58 | 36 | 21 | 45 |
| 3 | 55 | 63 | 41 | 30 | 33 | 19 | 20 | 118 | 54 | 36 | 20 | 34 |
| 4 | 47 | 61 | 42 | 30 | 30 | 18 | 19 | 116 | 51 | 34 | 19 | 28 |
| 5 | 47 | 58 | 41 | 29 | 28 | 18 | 19 | 72 | 49 | 33 | 19 | 68 |
| 6 | 45 | 56 | 46 | 29 | 27 | 18 | 18 | 84 | 48 | 33 | 19 | 229 |
| 7 | 47 | 55 | 40 | 29 | 28 | 18 | 20 | 135 | 47 | 33 | 21 | 299 |
| 8 | 41 | 53 | 39 | 29 | 27 | 17 | 25 | 106 | 51 | 33 | 19 | 179 |
| 9 | 42 | 52 | 38 | 28 | 26 | 18 | 27 | 81 | 58 | 31 | 19 | 129 |
| 10 | 62 | 52 | 38 | 27 | 25 | 18 | 21 | 69 | 51 | 30 | 22 | 111 |
| 11 | 54 | 50 | 38 | 27 | 25 | 19 | 32 | 63 | 46 | 30 | 19 | 84 |
| 12 | 45 | 47 | 37 | 27 | 25 | 24 | 43 | 58 | 58 | 31 | 20 | 73 |
| 13 | 43 | 47 | 85 | 27 | 25 | 18 | 49 | 54 | 60 | 29 | 18 | 70 |
| 14 | 42 | 46 | 99 | 27 | 24 | 16 | 69 | 52 | 48 | 29 | 17 | 68 |
| 15 | 41 | 48 | 73 | 27 | 24 | 16 | 51 | 49 | 45 | 31 | 17 | 64 |
| 16 | 59 | 49 | 43 | 26 | 23 | 16 | 71 | 84 | 44 | 32 | 31 | 62 |
| 17 | 114 | 51 | 38 | 26 | 23 | 16 | 108 | 76 | 42 | 28 | 26 | 64 |
| 18 | 121 | 46 | 37 | 26 | 23 | 15 | 81 | 59 | 41 | 27 | 20 | 61 |
| 19 | 107 | 56 | 35 | 25 | 22 | 14 | 62 | 54 | 46 | 26 | 21 | 60 |
| 20 | 70 | 45 | 34 | 25 | 24 | 14 | 49 | 55 | 48 | 26 | 26 | 63 |
| 21 | 58 | 44 | 33 | 24 | 26 | 15 | 82 | 54 | 43 | 26 | 21 | 57 |
| 22 | 58 | 44 | 33 | 25 | 23 | 14 | 68 | 65 | 41 | 35 | 19 | 57 |
| 23 | 67 | 43 | 33 | 26 | 22 | 13 | 73 | 152 | 40 | 44 | 19 | 63 |
| 24 | 64 | 42 | 32 | 25 | 22 | 13 | 48 | 94 | 39 | 30 | 18 | 65 |
| 25 | 60 | 42 | 31 | 26 | 21 | 16 | 46 | 69 | 38 | 29 | 22 | 58 |
| 26 | 56 | 41 | 33 | 25 | 22 | 14 | 57 | 65 | 38 | 26 | 39 | 58 |
| 27 | 59 | 41 | 34 | 25 | 21 | 29 | 33 | 59 | 37 | 28 | 21 | 62 |
| 28 | 56 | 42 | 32 | 24 | 21 | 29 | 55 | 73 | 37 | 25 | 33 | 68 |
| 29 | 57 | 51 | 38 | 35 | --- | 19 | 78 | 63 | 42 | 23 | 37 | 80 |
| 30 | 119 | 60 | 49 | 33 | --- | 70 | 47 | 96 | 49 | 22 | 55 | 60 |
| 31 | 105 | --- | 35 | 34 | --- | 61 | --- | 80 | --- | 22 | 68 | --- |
| TOTAL | 2001 | 1555 | 1320 | 859 | 717 | 645 | 1419 | 2319 | 1420 | 936 | 767 | 2499 |
| MEAN | 64.5 | 51.8 | 42.6 | 27.7 | 25.6 | 20.8 | 47.3 | 74.8 | 47.3 | 30.2 | 24.7 | 83.3 |
| MAX | 121 | 100 | 99 | 35 | 44 | 70 | 108 | 152 | 71 | 44 | 68 | 299 |
| MIN | 41 | 41 | 31 | 24 | 21 | 13 | 18 | 31 | 37 | 22 | 17 | 28 |

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1990 - 1993, BY WATER YEAR (WY)

| | MEAN | MAX | MIN | MEAN | MAX | MIN | MEAN | MAX | MIN | MEAN | MAX | MIN |
|------|------|------|------|------|------|------|------|------|------|------|------|------|
| 1990 | 87.4 | 112 | 64.5 | 52.8 | 55.9 | 50.7 | 34.9 | 42.6 | 29.8 | 25.6 | 27.7 | 21.6 |
| 1991 | 52.8 | 55.9 | 50.7 | 34.9 | 42.6 | 29.8 | 25.6 | 27.7 | 21.6 | 17.5 | 18.5 | 11.8 |
| 1992 | 34.9 | 42.6 | 29.8 | 25.6 | 27.7 | 21.6 | 17.5 | 18.5 | 11.8 | 74.2 | 70.3 | 43.1 |
| 1993 | 25.6 | 27.7 | 21.6 | 17.5 | 18.5 | 11.8 | 74.2 | 70.3 | 43.1 | 66.0 | 83.3 | 48.4 |

SUMMARY STATISTICS

FOR 1993 WATER YEAR

WATER YEARS 1990 - 1993

| | | | |
|--------------------------|-------|--------|------|
| ANNUAL TOTAL | 16457 | | |
| ANNUAL MEAN | 45.1 | 47.7 | |
| HIGHEST ANNUAL MEAN | | 49.2 | 1992 |
| LOWEST ANNUAL MEAN | | 45.1 | 1993 |
| HIGHEST DAILY MEAN | 299 | Sep 7 | 1993 |
| LOWEST DAILY MEAN | 13 | Mar 23 | 1993 |
| ANNUAL SEVEN-DAY MINIMUM | 14 | Mar 18 | 1993 |
| INSTANTANEOUS PEAK FLOW | 902 | Sep 7 | 1991 |
| INSTANTANEOUS PEAK STAGE | 11.86 | Sep 7 | 1991 |
| INSTANTANEOUS LOW FLOW | 13 | Mar 23 | 1993 |
| 10 PERCENT EXCEEDS | 73 | | |
| 50 PERCENT EXCEEDS | 38 | | |
| 90 PERCENT EXCEEDS | 19 | | |

e Estimated

RIO CAMUY BASIN

50014800 RIO CAMUY NEAR BAYANEY, PR

LOCATION.--Lat 18°23'48", long 66°49'04", Hydrologic Unit 21010002, on left bank at Highway 488, 1.4 mi (2.2 km) southeast of school at Santiago, 0.9 mi (1.4 km) northwest from Escuela Manuel A. Rivera at Bayaney and 9.1 mi (14.6 km) upstream from Atlantic Ocean.

DRAINAGE AREA.--Indeterminate.

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--May 1984 to current year.

GAGE.--Water-stage recorder. Elevation of gage is 341 ft (104 m), from topographic map.

REMARKS.--Records fair except those for estimated daily discharges, which are poor. Gage-height and precipitation satellite telemetry at station.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993
DAILY MEAN VALUES

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|-------|------|------|------|------|------|------|------|------|------|------|------|------|
| 1 | 191 | 193 | 112 | e100 | e84 | e34 | 69 | 116 | 148 | 71 | 39 | 165 |
| 2 | 139 | 118 | 77 | e90 | e66 | e34 | e129 | 106 | 104 | 69 | 38 | 98 |
| 3 | 111 | 99 | 71 | e82 | e58 | e33 | 76 | 349 | 90 | 64 | 37 | 62 |
| 4 | 89 | 112 | 78 | e76 | e56 | e32 | 43 | 315 | 81 | 58 | 36 | 55 |
| 5 | 87 | 92 | 72 | e72 | e50 | e33 | 39 | 155 | 76 | 57 | 35 | 123 |
| 6 | 79 | 86 | 67 | e68 | e49 | e32 | 37 | 249 | 70 | 57 | 35 | 489 |
| 7 | 90 | 82 | 63 | e66 | e48 | e31 | 38 | 358 | 67 | 55 | 41 | 893 |
| 8 | 76 | 79 | 57 | e66 | e50 | e31 | 47 | 273 | 73 | 55 | 37 | 486 |
| 9 | 75 | 78 | 55 | e61 | e46 | e32 | 68 | 177 | 85 | 54 | 35 | 247 |
| 10 | 105 | 77 | 53 | e58 | 45 | e33 | 45 | 146 | 70 | 53 | 43 | 238 |
| 11 | 106 | 76 | 52 | e57 | 43 | e32 | 59 | 123 | 59 | 53 | 36 | 148 |
| 12 | 79 | 73 | 51 | e56 | 42 | 49 | 138 | 111 | 123 | 52 | 39 | 101 |
| 13 | 75 | 81 | 192 | e54 | 41 | 37 | 128 | 101 | 156 | 49 | 36 | 87 |
| 14 | 72 | 78 | 298 | e54 | 39 | 34 | 164 | 95 | 86 | 47 | 35 | 84 |
| 15 | 70 | 74 | 184 | e52 | 39 | 35 | 135 | 95 | 66 | 51 | 33 | 74 |
| 16 | 88 | 82 | 89 | e50 | 38 | 33 | 240 | 156 | 62 | 54 | 50 | e120 |
| 17 | 241 | 81 | 75 | e50 | 37 | 35 | 286 | 152 | 58 | 49 | 68 | e230 |
| 18 | 234 | 79 | 70 | e52 | 37 | 34 | 303 | 102 | 98 | 46 | 43 | e170 |
| 19 | 187 | 83 | 66 | e48 | 36 | 33 | 195 | 105 | 78 | 47 | 38 | e90 |
| 20 | 99 | 75 | 64 | e52 | 40 | 32 | 175 | 106 | 85 | 46 | 52 | e110 |
| 21 | 74 | 101 | 65 | e49 | 47 | 33 | 348 | 131 | 70 | 46 | 39 | e72 |
| 22 | 72 | 81 | 69 | e52 | 38 | 33 | 229 | 159 | 70 | 61 | 34 | e66 |
| 23 | 102 | 73 | 66 | e52 | e37 | 31 | 236 | 357 | 65 | 105 | 34 | e90 |
| 24 | 94 | 66 | 64 | e52 | e37 | 31 | 169 | 215 | 63 | 66 | 34 | e120 |
| 25 | 77 | 64 | 73 | e50 | e36 | 34 | 154 | 149 | 61 | 57 | 35 | e96 |
| 26 | 68 | 66 | 114 | e47 | e35 | 32 | 176 | 135 | 59 | 52 | 77 | e100 |
| 27 | 76 | 101 | 88 | e46 | e35 | 44 | 106 | 117 | 58 | 53 | 51 | e80 |
| 28 | 74 | 82 | 95 | e54 | e34 | 79 | 420 | 203 | 58 | 47 | 41 | e76 |
| 29 | 67 | 149 | e120 | e66 | --- | 40 | 307 | 151 | 58 | 43 | 83 | e150 |
| 30 | 214 | 158 | e180 | e62 | --- | 166 | 172 | 196 | 85 | 40 | 117 | e210 |
| 31 | 198 | --- | e130 | e68 | --- | 169 | --- | 191 | --- | 40 | 134 | --- |
| TOTAL | 3409 | 2739 | 2910 | 1862 | 1243 | 1371 | 4731 | 5394 | 2382 | 1697 | 1485 | 5130 |
| MEAN | 110 | 91.3 | 93.9 | 60.1 | 44.4 | 44.2 | 158 | 174 | 79.4 | 54.7 | 47.9 | 171 |
| MAX | 241 | 193 | 298 | 100 | 84 | 169 | 420 | 358 | 156 | 105 | 134 | 893 |
| MIN | 67 | 64 | 51 | 46 | 34 | 31 | 37 | 95 | 58 | 40 | 33 | 55 |

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1984 - 1993, BY WATER YEAR (WY)

| | MEAN | 208 | 123 | 70.3 | 49.8 | 46.4 | 47.7 | 112 | 193 | 106 | 79.7 | 91.6 | 153 |
|------|------|------|------|------|------|------|------|------|------|------|------|------|-----|
| MAX | 427 | 244 | 97.4 | 80.9 | 78.3 | 66.0 | 202 | 624 | 141 | 109 | 135 | 273 | |
| (WY) | 1986 | 1986 | 1988 | 1988 | 1987 | 1992 | 1986 | 1986 | 1992 | 1989 | 1989 | 1984 | |
| MIN | 81.6 | 74.9 | 49.7 | 33.1 | 29.2 | 35.7 | 61.4 | 43.2 | 79.4 | 54.7 | 47.9 | 99.2 | |
| (WY) | 1988 | 1989 | 1989 | 1991 | 1992 | 1991 | 1990 | 1989 | 1993 | 1993 | 1993 | 1992 | |

SUMMARY STATISTICS

FOR 1992 CALENDAR YEAR

FOR 1993 WATER YEAR

WATER YEARS 1984 - 1993

| | | | |
|--------------------------|-------|--------|-------|
| ANNUAL TOTAL | 33404 | 34353 | |
| ANNUAL MEAN | 91.3 | 94.1 | 106 |
| HIGHEST ANNUAL MEAN | | | 179 |
| LOWEST ANNUAL MEAN | | | 89.3 |
| HIGHEST DAILY MEAN | 549 | May 23 | 893 |
| LOWEST DAILY MEAN | 25 | Mar 2 | 31 |
| ANNUAL SEVEN-DAY MINIMUM | 25 | Feb 29 | 32 |
| INSTANTANEOUS PEAK FLOW | | | 2570 |
| INSTANTANEOUS PEAK STAGE | | | 12.77 |
| INSTANTANEOUS LOW FLOW | | | 30 |
| 10 PERCENT EXCEEDS | 187 | | 182 |
| 50 PERCENT EXCEEDS | 74 | | 70 |
| 90 PERCENT EXCEEDS | 29 | | 36 |

e Estimated

RIO CAMUY BASIN

50015700 RIO CAMUY NEAR HATILLO, PR

LOCATION.--Lat 18°27'44", long 66°49'56", Hydrologic Unit 21010002, 1.8 mi (2.9 km) southwest of Hatillo plaza, and 1.8 mi (2.9 km) southeast of Camuy plaza, 1.2 mi (1.9 km) south of Planta de Purificación, and 3.3 mi (5.5 km) upstream from Atlantic Ocean.

DRAINAGE AREA.--Indeterminate.

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--June 1984 to current year.

GAGE.--Water-stage recorder. Elevation of gage is 13 ft (4 m), from topographic map.

REMARKS.--Records fair except those for estimated daily discharges, which are poor. Gage-height and precipitation satellite telemetry at station.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993
DAILY MEAN VALUES

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|-------|------|------|------|------|------|------|-------|-------|------|------|------|------|
| 1 | 269 | 299 | 247 | 126 | e96 | 44 | 82 | 244 | 271 | 78 | 46 | 223 |
| 2 | 203 | 158 | 124 | 110 | e80 | 44 | 144 | 199 | 148 | 75 | 45 | 154 |
| 3 | 131 | 113 | 108 | 98 | e69 | 43 | 141 | 611 | 123 | 82 | 44 | 75 |
| 4 | 87 | 189 | 125 | 92 | e67 | 41 | 56 | 1130 | 111 | 69 | 43 | 65 |
| 5 | 83 | 119 | 161 | 86 | e61 | 42 | 47 | 304 | 102 | 65 | 42 | 109 |
| 6 | 72 | 101 | 109 | 82 | e58 | 41 | 41 | 388 | 93 | 64 | 42 | 506 |
| 7 | 86 | 92 | 98 | 80 | e58 | 40 | 50 | 840 | 89 | 63 | 48 | 1650 |
| 8 | 70 | 87 | 85 | 79 | 59 | 40 | 117 | 709 | 89 | 62 | 42 | 1420 |
| 9 | 68 | 85 | 80 | 74 | 57 | 41 | 91 | 302 | 113 | 61 | 41 | 431 |
| 10 | 69 | 88 | 77 | 71 | 55 | 42 | 56 | 255 | 119 | 60 | 48 | 357 |
| 11 | 156 | 83 | 74 | 69 | 53 | 41 | 86 | 190 | 84 | 60 | 41 | 271 |
| 12 | 72 | 79 | 71 | 67 | 53 | 55 | 209 | 161 | 149 | 59 | 44 | 138 |
| 13 | 67 | 97 | 105 | 65 | 52 | 45 | 126 | 140 | 328 | 58 | 40 | 116 |
| 14 | 65 | 160 | 900 | 63 | 50 | 40 | 187 | 126 | 187 | 54 | 39 | 129 |
| 15 | 61 | 94 | 445 | 63 | 49 | 41 | 215 | 122 | 109 | 59 | 38 | 99 |
| 16 | 59 | 100 | 164 | 61 | 48 | 40 | 304 | 178 | 90 | 62 | 50 | 143 |
| 17 | 270 | 94 | 124 | 59 | 48 | 40 | 482 | 293 | 81 | 55 | 68 | 281 |
| 18 | 397 | 87 | 113 | 61 | 47 | 38 | 588 | 131 | 203 | 52 | 51 | 206 |
| 19 | 380 | 107 | 104 | 58 | 46 | 37 | 391 | 127 | 182 | 53 | 49 | 111 |
| 20 | 146 | 88 | 104 | e60 | 52 | 35 | 331 | 155 | 161 | 53 | 57 | 129 |
| 21 | 90 | 166 | 99 | e58 | 66 | 37 | 602 | 197 | 108 | 52 | 47 | 88 |
| 22 | 84 | 134 | 111 | e62 | 51 | 35 | 580 | 304 | 98 | 54 | 41 | 81 |
| 23 | 142 | 94 | 107 | e62 | 48 | 34 | 417 | 684 | 89 | 143 | 42 | 107 |
| 24 | 162 | 82 | 103 | e62 | 48 | 34 | 359 | 447 | 81 | 78 | 40 | 141 |
| 25 | 103 | 77 | 105 | e60 | 47 | 37 | 248 | 256 | 76 | 63 | 39 | 118 |
| 26 | 86 | 82 | 321 | e56 | 46 | 35 | 341 | 205 | 72 | 54 | 77 | 123 |
| 27 | 92 | 231 | 182 | e55 | 45 | 45 | 149 | 155 | 70 | 59 | 57 | 99 |
| 28 | 103 | 165 | 192 | e64 | 44 | 79 | 1420 | 282 | 68 | 53 | 41 | 93 |
| 29 | 85 | 279 | 263 | e76 | --- | 44 | 1850 | 342 | 68 | 48 | 93 | 181 |
| 30 | 295 | 363 | 388 | e72 | --- | 231 | 592 | 223 | 94 | 47 | 143 | 257 |
| 31 | 355 | --- | 165 | e82 | --- | 278 | --- | 346 | --- | 46 | 161 | --- |
| TOTAL | 4408 | 3993 | 5454 | 2233 | 1553 | 1719 | 10302 | 10046 | 3656 | 1941 | 1699 | 7901 |
| MEAN | 142 | 133 | 176 | 72.0 | 55.5 | 55.5 | 343 | 324 | 122 | 62.6 | 54.8 | 263 |
| MAX | 397 | 363 | 900 | 126 | 96 | 278 | 1850 | 1130 | 328 | 143 | 161 | 1650 |
| MIN | 59 | 77 | 71 | 55 | 44 | 34 | 41 | 122 | 68 | 46 | 38 | 65 |

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1984 - 1993, BY WATER YEAR (WY)

| | | | | | | | | | | | | |
|------|------|------|------|------|------|------|------|------|------|------|------|------|
| MEAN | 354 | 187 | 93.4 | 63.9 | 66.7 | 67.5 | 207 | 386 | 147 | 106 | 117 | 212 |
| MAX | 735 | 439 | 176 | 131 | 134 | 88.1 | 411 | 1586 | 218 | 161 | 180 | 376 |
| (WY) | 1986 | 1986 | 1993 | 1988 | 1987 | 1992 | 1986 | 1986 | 1992 | 1990 | 1989 | 1989 |
| MIN | 116 | 115 | 51.4 | 46.2 | 34.1 | 49.2 | 70.5 | 59.5 | 105 | 62.6 | 54.8 | 117 |
| (WY) | 1988 | 1989 | 1992 | 1989 | 1992 | 1988 | 1992 | 1989 | 1991 | 1993 | 1993 | 1992 |

| SUMMARY STATISTICS | FOR 1992 CALENDAR YEAR | FOR 1993 WATER YEAR | WATER YEARS 1984 - 1993 |
|--------------------------|------------------------|---------------------|-------------------------|
| ANNUAL TOTAL | 47842 | 54905 | |
| ANNUAL MEAN | 131 | 150 | 168 |
| HIGHEST ANNUAL MEAN | | | 335 |
| LOWEST ANNUAL MEAN | | | 129 |
| HIGHEST DAILY MEAN | 1250 | May 23 | 8150 |
| LOWEST DAILY MEAN | 31 | Feb 28 | 25 |
| ANNUAL SEVEN-DAY MINIMUM | 31 | Feb 28 | 30 |
| INSTANTANEOUS PEAK FLOW | | | 10700 |
| INSTANTANEOUS PEAK STAGE | | | 24.75 |
| INSTANTANEOUS LOW FLOW | | | |
| 10 PERCENT EXCEEDS | 303 | | 318 |
| 50 PERCENT EXCEEDS | 79 | | 82 |
| 90 PERCENT EXCEEDS | 34 | | 42 |

e Estimated

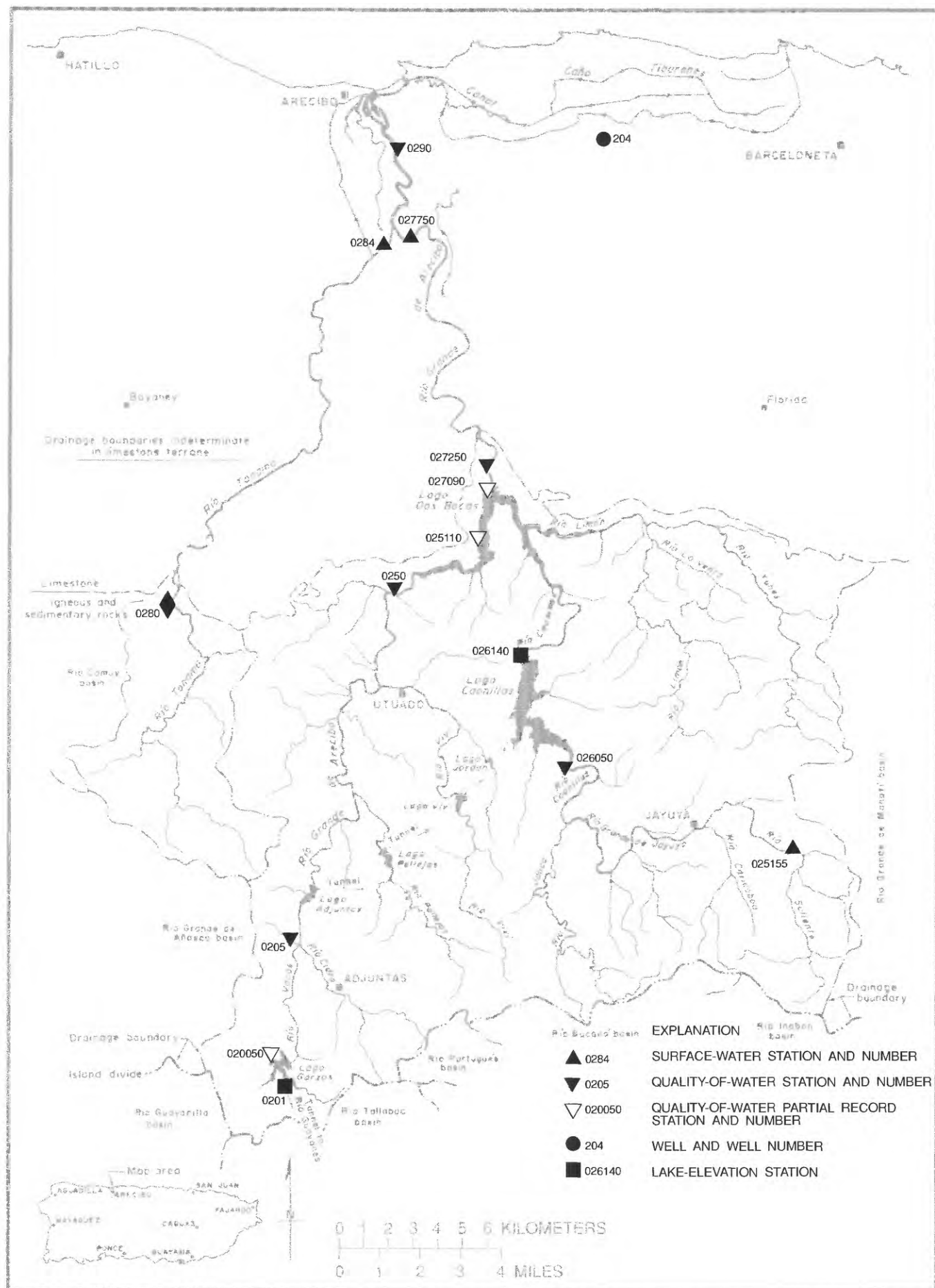


Figure 15.--Río Grande de Arecibo basin.

RIO GRANDE DE ARECIBO BASIN

50020100 LAGO GARZAS NEAR ADJUNTAS, PR

LOCATION.--Lat 18°08'20", long 66°44'29", Hydrologic Unit 21010002, in power gate tower of Garzas Dam on Río Vacas, 1.7 mi (2.7 km) upstream from Río Garzas, and 2.2 mi (3.5 km) southwest of Adjuntas.

DRAINAGE AREA.--15.6 mi² (40.4 km²).

ELEVATION RECORDS

PERIOD OF RECORD.--January 1988 to May 1989, March to September 1993.

GAGE.--Water-stage recorder. Datum of gage is 2,400.00 ft (731.520 m) above mean sea level. Prior to May 25, 1988 at datum 2,376.80 ft (724.449 m), May 25 to July 13, 1988 at datum 2,338.08 ft (712.647 m), July 14, 1988 to May 25, 1989 at datum 2,337.82 ft (712.560 m) above mean sea level.

REMARKS.--Lake is formed by earthfill dam completed in 1943. Outflow from lake controlled by vertical-lift sluice gate and fixed-crest concrete spillway. Spillway elevation, 2,415.00 ft (736.09 m). Lake is used for irrigation and power production. Operated by P.R. Electric Power Authority. Gage-height and precipitation satellite telemetry at station.

EXTREMES OBSERVED FOR PERIOD OF RECORD.--Maximum elevation 2,417.66 ft (736.903 m), May 27, 1993; minimum elevation, 2,364.79 ft (720.788 m), Aug. 23, 1988.

EXTREMES OBSERVED FOR WATER YEARS 1989, 1993.--Water Year 1989: Maximum elevation 2,414.76 ft (736.019 m), Jan. 23; minimum elevation, 2,365.84 ft (721.108 m), May 2.
Water Year 1993: Maximum elevation 2,417.66 ft (736.903 m), May 27; minimum elevation, 2,412.26 ft (735.257 m), May 18.

Capacity table
(based on data from Puerto Rico Electric Power Authority)

| Elevation, in feet | Contents, in acre-feet | Elevation, in feet | Contents, in acre-feet |
|--------------------|------------------------|--------------------|------------------------|
| 2,364 | 660 | 2,415 | 4,082 |
| 2,382 | 1,500 | 2,418 | 4,411 |
| 2,394 | 2,250 | | |

ELEVATION (FEET NGVD), WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989
DAILY OBSERVATION AT 24:00 VALUES

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|------|-----|-----|-----|---------|---------|---------|-----|---------|-----|-----|-----|-----|
| 1 | A | A | A | A | 2412.73 | A | A | A | A | A | A | A |
| 2 | A | A | A | A | 2412.50 | A | A | A | A | A | A | A |
| 3 | A | A | A | A | 2412.25 | A | A | A | A | A | A | A |
| 4 | A | A | A | A | 2412.00 | A | A | A | A | A | A | A |
| 5 | A | A | A | A | 2411.76 | A | A | A | A | A | A | A |
| 6 | A | A | A | A | 2411.51 | A | A | A | A | A | A | A |
| 7 | A | A | A | A | 2411.24 | A | A | A | A | A | A | A |
| 8 | A | A | A | A | 2410.97 | A | A | A | A | A | A | A |
| 9 | A | A | A | A | 2410.73 | 2409.31 | A | A | A | A | A | A |
| 10 | A | A | A | A | 2410.47 | 2409.43 | A | A | A | A | A | A |
| 11 | A | A | A | A | 2410.20 | 2409.57 | A | A | A | A | A | A |
| 12 | A | A | A | A | 2409.94 | 2410.14 | A | A | A | A | A | A |
| 13 | A | A | A | A | 2409.50 | 2410.24 | A | A | A | A | A | A |
| 14 | A | A | A | A | A | 2411.30 | A | 2395.91 | A | A | A | A |
| 15 | A | A | A | A | A | 2411.32 | A | 2391.84 | A | A | A | A |
| 16 | A | A | A | A | A | 2411.30 | A | 2391.68 | A | A | A | A |
| 17 | A | A | A | A | A | 2411.50 | A | 2393.20 | A | A | A | A |
| 18 | A | A | A | A | A | 2411.71 | A | 2391.69 | A | A | A | A |
| 19 | A | A | A | 2414.31 | A | 2411.74 | A | 2391.69 | A | A | A | A |
| 20 | A | A | A | 2414.55 | A | 2411.82 | A | 2391.81 | A | A | A | A |
| 21 | A | A | A | 2414.67 | A | 2411.71 | A | 2391.70 | A | A | A | A |
| 22 | A | A | A | 2414.72 | A | 2411.77 | A | 2390.98 | A | A | A | A |
| 23 | A | A | A | 2414.72 | A | 2411.58 | A | 2390.21 | A | A | A | A |
| 24 | A | A | A | 2414.50 | A | 2411.85 | A | 2389.23 | A | A | A | A |
| 25 | A | A | A | 2414.28 | A | 2411.92 | A | 2389.22 | A | A | A | A |
| 26 | A | A | A | 2414.07 | A | 2412.12 | A | A | A | A | A | A |
| 27 | A | A | A | 2413.86 | A | 2412.38 | A | A | A | A | A | A |
| 28 | A | A | A | 2413.64 | A | 2412.74 | A | A | A | A | A | A |
| 29 | A | A | A | 2413.42 | --- | 2412.79 | A | A | A | A | A | A |
| 30 | A | A | A | 2413.20 | --- | 2412.73 | A | A | A | A | A | A |
| 31 | A | --- | A | 2412.97 | --- | 2412.78 | --- | A | --- | A | A | --- |
| MEAN | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| MAX | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| MIN | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |

A No gage-height record

RIO GRANDE DE ARECIBO BASIN

61

50020100 LAGO GARZAS NEAR ADJUNTAS, PR-Continued

ELEVATION (FEET NGVD), WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993
DAILY OBSERVATION AT 24:00 VALUES

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|------|-----|-----|-----|-----|-----|---------|---------|---------|---------|---------|---------|---------|
| 1 | A | A | A | A | A | A | 2414.80 | 2414.83 | A | 2414.62 | 2414.75 | 2414.72 |
| 2 | A | A | A | A | A | A | 2414.57 | 2414.86 | A | 2414.61 | 2414.67 | 2414.66 |
| 3 | A | A | A | A | A | A | 2414.54 | 2414.96 | 2414.72 | 2414.62 | 2414.65 | 2414.65 |
| 4 | A | A | A | A | A | A | 2414.53 | 2414.30 | 2414.72 | 2414.58 | 2414.64 | 2414.65 |
| 5 | A | A | A | A | A | A | 2414.53 | 2414.39 | 2414.73 | 2414.63 | 2414.64 | 2414.65 |
| 6 | A | A | A | A | A | A | 2414.53 | 2414.34 | 2414.71 | 2414.64 | 2414.64 | 2414.65 |
| 7 | A | A | A | A | A | A | 2414.51 | 2414.43 | 2414.70 | 2414.67 | 2414.63 | 2414.68 |
| 8 | A | A | A | A | A | A | 2414.52 | 2414.70 | 2414.71 | 2414.60 | 2414.63 | 2414.67 |
| 9 | A | A | A | A | A | A | 2414.69 | 2414.93 | 2414.69 | 2414.57 | 2414.64 | 2414.65 |
| 10 | A | A | A | A | A | A | 2414.83 | 2414.33 | 2414.63 | 2414.56 | 2414.63 | 2414.76 |
| 11 | A | A | A | A | A | A | 2414.88 | 2413.75 | 2414.62 | 2414.65 | 2414.63 | 2414.67 |
| 12 | A | A | A | A | A | A | 2414.80 | 2413.26 | 2414.63 | 2414.58 | 2414.61 | 2414.66 |
| 13 | A | A | A | A | A | A | 2414.87 | 2413.22 | 2414.62 | 2414.58 | 2414.61 | 2414.76 |
| 14 | A | A | A | A | A | A | 2414.88 | 2413.18 | 2414.61 | 2414.62 | 2414.61 | 2414.68 |
| 15 | A | A | A | A | A | A | 2414.95 | 2413.17 | 2414.75 | 2414.58 | 2414.65 | 2414.76 |
| 16 | A | A | A | A | A | A | 2414.82 | 2413.18 | 2414.61 | 2414.57 | 2414.71 | 2414.80 |
| 17 | A | A | A | A | A | 2414.56 | 2414.79 | 2412.46 | 2414.57 | 2414.55 | 2414.65 | 2414.71 |
| 18 | A | A | A | A | A | 2414.71 | 2414.79 | 2412.72 | 2415.04 | 2414.54 | 2414.63 | 2414.70 |
| 19 | A | A | A | A | A | 2414.76 | 2414.78 | 2412.75 | 2414.77 | 2414.53 | 2414.61 | 2414.65 |
| 20 | A | A | A | A | A | 2414.76 | 2414.78 | 2412.95 | 2414.67 | 2414.51 | 2414.60 | 2414.67 |
| 21 | A | A | A | A | A | 2414.77 | 2414.39 | 2413.89 | 2414.65 | 2414.48 | 2414.62 | 2414.73 |
| 22 | A | A | A | A | A | 2414.77 | 2414.32 | 2414.20 | 2414.63 | 2414.55 | 2414.75 | 2414.77 |
| 23 | A | A | A | A | A | 2414.78 | 2414.31 | 2414.51 | 2414.62 | 2414.52 | 2414.77 | 2414.49 |
| 24 | A | A | A | A | A | 2414.52 | 2414.47 | 2414.58 | 2414.60 | 2414.58 | 2414.66 | 2414.57 |
| 25 | A | A | A | A | A | 2414.52 | 2414.60 | 2414.43 | 2414.59 | 2414.55 | 2414.65 | 2414.71 |
| 26 | A | A | A | A | A | 2414.66 | 2414.72 | 2414.73 | 2414.58 | 2414.52 | 2414.66 | 2414.83 |
| 27 | A | A | A | A | A | 2414.76 | 2414.66 | A | 2414.58 | 2414.48 | 2414.70 | 2414.81 |
| 28 | A | A | A | A | A | 2414.79 | 2414.88 | A | 2414.63 | 2414.67 | 2414.65 | 2414.84 |
| 29 | A | A | A | A | --- | 2414.80 | 2415.03 | A | 2414.61 | 2414.74 | 2414.64 | 2414.77 |
| 30 | A | A | A | A | --- | 2414.66 | 2414.95 | A | 2414.62 | 2414.75 | 2414.63 | 2414.85 |
| 31 | A | --- | A | A | --- | 2414.77 | --- | A | --- | 2414.75 | 2414.64 | --- |
| MEAN | --- | --- | --- | --- | --- | --- | 2414.69 | --- | --- | 2414.60 | 2414.65 | 2414.71 |
| MAX | --- | --- | --- | --- | --- | --- | 2415.03 | --- | --- | 2414.75 | 2414.77 | 2414.85 |
| MIN | --- | --- | --- | --- | --- | --- | 2414.31 | --- | --- | 2414.48 | 2414.60 | 2414.49 |

A No gage-height record

RIO GRANDE DE ARECIBO BASIN

50020500 RIO GRANDE DE ARECIBO NEAR ADJUNTAS, PR

WATER-QUALITY RECORDS

LOCATION.--Lat 18°10'54", long 66°44'12", at Highway 135 bridge, 1.0 mi (1.6 km) upstream from Lago Adjuntas, and 1.5 mi (2.4 km) northwest of Adjuntas plaza.

DRAINAGE AREA.--12.7 mi² (32.9 km²) this does not include 6.0 mi² (15.6 km²) above Lago Garzas.

PERIOD OF RECORD.--Water years 1969-74, 1979 to current year.

WATER-QUALITY DATA, WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993

| DATE | TIME | DIS- CHARGE, INST. CUBIC FEET PER SECOND | SPE- CIFIC CON- DUCT- ANCE (US/CM) | PH WATER WHOLE FIELD (STAND- ARD UNITS) | TEMPER- ATURE WATER (DEG C) | TUR- BID- ITY (NTU) | OXYGEN, DIS- SOLVED (MG/L) | OXYGEN, DIS- SOLVED (PER- CENT SATUR- ATION) | OXYGEN DEMAND, CHEM- ICAL (HIGH LEVEL) (MG/L) | COLI- FORM, FECAL, 0.45 UM-MF (COLS./ 100 ML) | STREP- TOCOCCI FECAL, (COLS. PER 100 ML) |
|----------|------|--|---|---|--------------------------------------|------------------------------|-------------------------------------|--|---|---|---|
| OCT 1992 | | | | | | | | | | | |
| 15... | 1105 | 76 | 276 | 7.2 | 22.0 | 1.9 | 6.6 | 95 | 15 | K820 | 3400 |
| DEC | | | | | | | | | | | |
| 14... | 0920 | 65 | 594 | 7.3 | 21.0 | 2.6 | 6.1 | 71 | 24 | 5700 | 58000 |
| FEB 1993 | | | | | | | | | | | |
| 09... | 0945 | 18 | 330 | 7.5 | 20.0 | 1.0 | 7.0 | 87 | <10 | 240 | 480 |
| APR | | | | | | | | | | | |
| 20... | 1020 | 19 | 324 | 7.5 | 23.5 | 1.3 | 8.0 | 92 | 23 | 380 | K1800 |
| JUN | | | | | | | | | | | |
| 04... | 0945 | 41 | 270 | 7.3 | 24.0 | 1.8 | 7.6 | 73 | 16 | K750 | 510 |
| SEP | | | | | | | | | | | |
| 21... | 1100 | 30 | 293 | 7.5 | 24.5 | 3.0 | 7.7 | 93 | <10 | 2400 | 710 |

| DATE | HARD- NESS TOTAL (MG/L AS CACO3) | HARD- NESS NONCARB WH WAT TOT FLD MG/L AS CACO3 | CALCIUM DIS- SOLVED (MG/L AS CA) | MAGNE- SIUM, DIS- SOLVED (MG/L AS MG) | SODIUM, DIS- SOLVED (MG/L AS NA) | SODIUM AD- SORP- TION RATIO | POTAS- SIUM, DIS- SOLVED (MG/L AS K) | ALKA- LITY WAT WH TOT FET MG/L AS CACO3 | SULFIDE TOTAL (MG/L AS S) | SULFATE DIS- SOLVED (MG/L AS SO4) | CHLO- RIDE, DIS- SOLVED (MG/L AS CL) |
|----------|---|---|--|--|--|---|---|--|------------------------------------|---|---|
| OCT 1992 | | | | | | | | | | | |
| 15... | 130 | 30 | 28 | 14 | 44 | 2.0 | 3.8 | 89 | <0.5 | 12 | 30 |
| DEC | | | | | | | | | | | |
| 14... | -- | -- | -- | -- | -- | -- | -- | 77 | -- | -- | -- |
| FEB 1993 | | | | | | | | | | | |
| 09... | -- | -- | -- | -- | -- | -- | -- | 120 | -- | -- | -- |
| APR | | | | | | | | | | | |
| 20... | 100 | 9 | 27 | 7.9 | 20 | 0.9 | 2.4 | 110 | <0.5 | 7.0 | 31 |
| JUN | | | | | | | | | | | |
| 04... | -- | -- | -- | -- | -- | -- | -- | 95 | -- | -- | -- |
| SEP | | | | | | | | | | | |
| 21... | 100 | 6 | 27 | 8.5 | 18 | 0.8 | 2.3 | 100 | -- | 10 | 25 |

| DATE | FLUO- RIDE, DIS- SOLVED (MG/L AS F) | SILICA, DIS- SOLVED (MG/L AS SiO2) | SOLIDS, SUM OF CONSTI- TUENTS, DIS- SOLVED (MG/L) | SOLIDS, DIS- SOLVED (TONS PER DAY) | RESIDUE TOTAL AT 105 DEG. C, SUS- PENDE (MG/L) | NITRO- GEN, NITRATE TOTAL (MG/L AS N) | NITRO- GEN, NITRITE TOTAL (MG/L AS N) | NITRO- GEN, NO2+NO3 TOTAL (MG/L AS N) | NITRO- GEN, AMMONIA TOTAL (MG/L AS N) | NITRO- GEN, ORGANIC TOTAL (MG/L AS N) |
|----------|--|---|---|---|--|--|--|--|--|--|
| OCT 1992 | | | | | | | | | | |
| 15... | <0.10 | 29 | 225 | 46 | <1 | 0.880 | 0.030 | 0.910 | 0.140 | 0.16 |
| DEC | | | | | | | | | | |
| 14... | -- | -- | -- | -- | 9 | 0.590 | 0.010 | 0.600 | 0.030 | 0.27 |
| FEB 1993 | | | | | | | | | | |
| 09... | -- | -- | -- | -- | <1 | 1.06 | 0.040 | 1.10 | 0.020 | 0.38 |
| APR | | | | | | | | | | |
| 20... | 0.10 | 28 | 189 | 9.71 | 1 | 0.850 | 0.050 | 0.900 | 0.030 | 0.67 |
| JUN | | | | | | | | | | |
| 04... | -- | -- | -- | -- | 28 | 0.720 | 0.080 | 0.800 | 0.040 | 0.16 |
| SEP | | | | | | | | | | |
| 21... | 0.10 | 25 | 176 | 14.0 | 13 | 0.880 | 0.020 | 0.900 | 0.010 | 0.39 |

K = non-ideal count

WATER QUALITY DATA, WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993

[illegible]

RIO GRANDE DE ARECIBO BASIN

50025000 RIO GRANDE DE ARECIBO NEAR UTUADO, PR

WATER-QUALITY RECORDS

LOCATION.--Lat 18°18'11", long 66°41'59", at bridge near Highway 10 at km 56.4, 0.5 mi (0.8 km) downstream from Río de Caguana, and 2.5 mi (4.0 km) north of Utuado plaza.

DRAINAGE AREA.--66.0 mi² (170.9 km²) this excludes 6.0 mi² (15.5 km²) upstream from Lago Garzas to Río Guayanés in the Río Tallaboa basin.

PERIOD OF RECORD.--Water years 1959-74, 1979 to current year.

WATER-QUALITY DATA, WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993

| DATE | TIME | DIS-CHARGE, INST. CUBIC FEET PER SECOND | SPE-CIFIC CON-DUCT-ANCE (US/CM) | PH WATER WHOLE FIELD (STAND-ARD UNITS) | TEMPER-ATURE WATER (DEG C) | TUR-BID-ITY (NTU) | OXYGEN, DIS-SOLVED (MG/L) | OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION) | OXYGEN DEMAND, CHRM-ICAL (HIGH LEVEL) (MG/L) | COLI-FORM, FECAL, 0.45 UM-MF (COLS./100 ML) | STREP-TOCOCCI, FECAL, (COLS./100 ML) |
|----------|------|---|---------------------------------|--|----------------------------|-------------------|---------------------------|---|--|---|--------------------------------------|
| OCT 1992 | | | | | | | | | | | |
| 20... | 1135 | 180 | 242 | 7.1 | 26.5 | 26 | 6.0 | 74 | <10 | 5500 | 3200 |
| DEC | | | | | | | | | | | |
| 14... | 1115 | 168 | 194 | 7.2 | 24.0 | 6.9 | 5.2 | 62 | 34 | 4600 | K110 |
| FEB 1993 | | | | | | | | | | | |
| 10... | 0855 | 59 | 238 | 7.6 | 21.0 | 3.7 | 8.4 | 82 | 19 | K1800 | 330 |
| APR | | | | | | | | | | | |
| 16... | 0950 | 184 | 180 | 6.9 | 22.0 | 4.3 | 8.3 | 80 | <10 | 38000 | 42000 |
| JUN | | | | | | | | | | | |
| 10... | 0925 | 149 | 175 | 7.0 | 23.5 | 250 | 8.1 | 78 | 18 | 58000 | 41000 |
| SEP | | | | | | | | | | | |
| 16... | 1120 | 79 | 250 | 7.4 | 27.0 | 5.3 | 9.0 | 112 | <10 | 3400 | 280 |

| DATE | HARD-NESS TOTAL (MG/L AS CaCO3) | HARD-NESS NONCARB WH WAT TOT FLD (MG/L AS CaCO3) | CALCIUM DIS-SOLVED (MG/L AS Ca) | MAGNE-SIUM, DIS-SOLVED (MG/L AS Mg) | SODIUM, DIS-SOLVED (MG/L AS Na) | SODIUM AD-SORP-TION RATIO | POTAS-SIUM, DIS-SOLVED (MG/L AS K) | ALKA-LINITY TOT WH FET FIELD (MG/L AS CaCO3) | SULFIDE TOTAL (MG/L AS S) | SULFATE DIS-SOLVED (MG/L AS SO4) | CHLO-RIDE, DIS-SOLVED (MG/L AS Cl) |
|----------|---------------------------------|--|---------------------------------|-------------------------------------|---------------------------------|---------------------------|------------------------------------|--|---------------------------|----------------------------------|------------------------------------|
| OCT 1992 | | | | | | | | | | | |
| 20... | 83 | 9 | 22 | 6.9 | 12 | 0.6 | 2.5 | 84 | <0.5 | 17 | 15 |
| DEC | | | | | | | | | | | |
| 14... | -- | -- | -- | -- | -- | -- | -- | 70 | -- | -- | -- |
| FEB 1993 | | | | | | | | | | | |
| 10... | -- | -- | -- | -- | -- | -- | -- | 94 | -- | -- | -- |
| APR | | | | | | | | | | | |
| 16... | 100 | 2 | 33 | 5.1 | 8.0 | 0.3 | 1.2 | 60 | <0.5 | 8.0 | 9.0 |
| JUN | | | | | | | | | | | |
| 10... | -- | -- | -- | -- | -- | -- | -- | 59 | -- | -- | -- |
| SEP | | | | | | | | | | | |
| 16... | 98 | 6 | 27 | 7.5 | 13 | 0.6 | 2.3 | 75 | -- | 18 | 12 |

| DATE | FLUO-RIDE, DIS-SOLVED (MG/L AS F) | SILICA, DIS-SOLVED (MG/L AS SiO2) | SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L) | SOLIDS, DIS-SOLVED (TONS PER DAY) | RESIDUE TOTAL AT 105 DEG. C, SUS-PENDED (MG/L) | NITRO-GEN, NITRATE TOTAL (MG/L AS N) | NITRO-GEN, NITRITE TOTAL (MG/L AS N) | NITRO-GEN, NO2+NO3 TOTAL (MG/L AS N) | NITRO-GEN, AMMONIA TOTAL (MG/L AS N) | NITRO-GEN, ORGANIC TOTAL (MG/L AS N) |
|----------|-----------------------------------|-----------------------------------|---|-----------------------------------|--|--------------------------------------|--------------------------------------|--------------------------------------|--------------------------------------|--------------------------------------|
| OCT 1992 | | | | | | | | | | |
| 20... | 0.10 | 27 | 153 | 74.3 | 19 | 1.07 | 0.030 | 1.10 | 0.120 | 0.18 |
| DEC | | | | | | | | | | |
| 14... | -- | -- | -- | -- | 48 | 0.390 | 0.010 | 0.400 | 0.030 | 0.27 |
| FEB 1993 | | | | | | | | | | |
| 10... | -- | -- | -- | -- | 16 | 0.490 | 0.010 | 0.500 | 0.010 | 0.19 |
| APR | | | | | | | | | | |
| 16... | 0.10 | 20 | 120 | 59.8 | 13 | 0.190 | 0.010 | 0.200 | 0.010 | 0.59 |
| JUN | | | | | | | | | | |
| 10... | -- | -- | -- | -- | 537 | 0.590 | 0.010 | 0.600 | 0.030 | 0.57 |
| SEP | | | | | | | | | | |
| 16... | <0.10 | 27 | 152 | 32.4 | 16 | 0.290 | 0.010 | 0.300 | 0.010 | 0.29 |

K = non-ideal count

WATER-QUALITY DATA, WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993

[illegible]

RIO GRANDE DE ARECIBO BASIN

50025155 RIO SALIENTE AT COABEY NEAR JAYUYA, PR

LOCATION---Lat 18°12'48", long 66°33'49", Hydrologic Unit 21010002, 2.0 mi (3.2 km) southeast of Jayuya, 1.4 mi (2.2 km) northeast of Hacienda Gripiñas.

DRAINAGE AREA---9.25 mi² (23.96 km²).

WATER-DISCHARGE RECORDS

PERIOD OF RECORD---October 1989 to current year.

GAGE---Water-stage recorder. Elevation of gage is 1,706 ft (520 m), from topographic map.

REMARKS---Records fair except those for estimated daily discharges, which are poor. Gage-height and precipitation satellite telemetry at station.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993
DAILY MEAN VALUES

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|-------|------|------|------|------|------|-------|--------|------|------|------|-------|-------|
| 1 | 27 | 88 | 31 | 20 | 35 | 12 | 6.7 | e110 | 49 | 16 | 10 | 22 |
| 2 | 20 | 55 | 28 | 20 | 23 | 12 | 6.5 | e280 | 40 | 16 | 10 | 13 |
| 3 | 17 | 43 | 28 | 19 | 22 | e11 | 6.5 | e120 | 35 | 24 | 9.9 | 11 |
| 4 | 47 | 39 | 26 | 19 | 19 | e10 | 14 | e54 | 31 | 19 | 9.4 | 161 |
| 5 | 129 | 35 | 23 | 19 | 18 | e9.6 | 6.3 | e35 | 28 | 16 | 9.3 | 29 |
| 6 | 136 | 31 | 21 | 20 | 17 | e9.5 | 6.2 | e26 | 26 | 16 | 9.2 | 17 |
| 7 | 55 | 28 | 20 | 20 | 17 | e9.4 | 6.2 | e23 | 25 | 31 | 9.1 | 14 |
| 8 | 40 | 26 | 19 | 17 | 16 | e12 | 8.3 | e21 | 25 | 19 | 8.8 | 14 |
| 9 | 55 | 25 | 19 | 16 | 16 | e10 | 8.2 | e24 | 46 | 16 | 9.8 | 14 |
| 10 | 68 | 24 | 19 | 16 | 16 | e8.8 | 7.4 | e27 | 27 | 15 | 9.6 | 14 |
| 11 | 38 | 24 | 18 | 16 | 15 | e8.4 | e80 | e23 | 23 | 79 | 8.9 | 15 |
| 12 | 27 | 24 | 18 | 16 | 15 | e8.0 | e24 | e20 | 21 | 31 | 8.7 | 11 |
| 13 | 22 | 24 | 17 | 16 | 15 | e8.0 | e150 | e17 | 20 | 34 | 8.5 | 11 |
| 14 | 22 | 26 | 20 | 16 | 15 | e7.8 | e60 | e33 | 21 | 29 | 8.3 | 10 |
| 15 | 20 | 34 | 22 | 16 | 14 | e7.6 | e54 | e27 | 23 | 19 | 8.4 | 9.8 |
| 16 | 31 | 58 | 19 | 15 | 16 | e7.8 | e58 | e19 | 22 | 17 | 63 | 9.9 |
| 17 | 37 | 25 | 20 | 15 | 15 | e8.0 | e22 | e16 | 19 | 16 | 14 | 28 |
| 18 | 26 | 27 | 19 | 14 | 14 | e8.3 | e19 | e14 | 18 | 15 | 11 | 22 |
| 19 | 21 | 46 | 21 | 15 | 14 | 8.2 | e15 | e13 | 68 | 15 | 9.7 | 17 |
| 20 | 19 | 106 | 19 | 14 | 17 | 13 | e12 | e13 | 56 | 14 | 9.3 | 13 |
| 21 | 17 | 34 | 18 | 14 | 17 | 12 | e12 | e13 | 26 | 14 | 9.6 | 12 |
| 22 | 24 | 36 | 23 | 15 | 13 | 8.7 | e10 | e15 | 23 | 16 | 10 | 11 |
| 23 | 87 | 31 | 20 | 17 | 12 | 8.3 | e9.4 | e220 | 21 | 16 | 10 | 27 |
| 24 | 199 | 29 | 20 | 16 | 12 | 8.3 | e16 | e98 | 19 | 14 | 9.4 | 21 |
| 25 | 91 | 27 | 19 | 15 | 12 | 8.5 | e20 | e160 | 18 | 13 | 8.9 | 14 |
| 26 | 42 | 25 | 48 | 14 | 12 | 8.4 | e12 | e88 | 17 | 16 | 8.6 | 12 |
| 27 | 37 | 26 | 33 | 15 | 11 | 8.1 | e11 | e56 | 17 | 14 | 10 | 11 |
| 28 | 30 | 68 | 27 | 65 | 11 | 7.9 | e210 | 56 | 18 | 12 | 18 | 25 |
| 29 | 203 | 74 | 26 | 95 | --- | 7.8 | e390 | 44 | 20 | 11 | 13 | 18 |
| 30 | 123 | 39 | 23 | 29 | --- | 7.8 | e130 | 130 | 20 | 11 | 45 | 41 |
| 31 | 86 | --- | 21 | 30 | --- | 7.2 | --- | 81 | --- | 11 | 48 | --- |
| TOTAL | 1796 | 1177 | 705 | 664 | 449 | 282.4 | 1390.7 | 1876 | 822 | 605 | 435.4 | 647.7 |
| MEAN | 57.9 | 39.2 | 22.7 | 21.4 | 16.0 | 9.11 | 46.4 | 60.5 | 27.4 | 19.5 | 14.0 | 21.6 |
| MAX | 203 | 106 | 48 | 95 | 35 | 13 | 390 | 280 | 68 | 79 | 63 | 161 |
| MIN | 17 | 24 | 17 | 14 | 11 | 7.2 | 6.2 | 13 | 17 | 11 | 8.3 | 9.8 |
| AC-FT | 3560 | 2330 | 1400 | 1320 | 891 | 560 | 2760 | 3720 | 1630 | 1200 | 864 | 1280 |
| CFSM | 6.26 | 4.24 | 2.46 | 2.32 | 1.73 | .98 | 5.01 | 6.54 | 2.96 | 2.11 | 1.52 | 2.33 |
| IN. | 7.22 | 4.73 | 2.84 | 2.67 | 1.81 | 1.14 | 5.59 | 7.54 | 3.31 | 2.43 | 1.75 | 2.60 |

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1989 - 1993, BY WATER YEAR (WY)

| | MEAN | 42.1 | 27.5 | 14.7 | 22.3 | 12.4 | 10.9 | 25.7 | 34.7 | 19.7 | 13.7 | 16.9 | 26.0 |
|------|------|------|------|------|------|------|------|------|------|------|------|------|------|
| MAX | 70.5 | 40.0 | 22.7 | 48.1 | 16.0 | 13.0 | 46.4 | 60.5 | 30.4 | 19.5 | 21.6 | 45.2 | |
| (WY) | 1991 | 1991 | 1993 | 1992 | 1993 | 1991 | 1993 | 1993 | 1992 | 1993 | 1992 | 1990 | |
| MIN | 11.6 | 10.5 | 8.07 | 7.19 | 6.00 | 9.11 | 7.01 | 5.35 | 10.1 | 6.85 | 13.8 | 14.4 | |
| (WY) | 1992 | 1992 | 1992 | 1990 | 1990 | 1993 | 1990 | 1990 | 1991 | 1990 | 1990 | 1991 | |

| SUMMARY STATISTICS | FOR 1992 CALENDAR YEAR | | | FOR 1993 WATER YEAR | | | WATER YEARS 1989 - 1993 | | |
|--------------------------|------------------------|--------|--|---------------------|--------|--|-------------------------|--------|------|
| ANNUAL TOTAL | 11515.2 | | | 10850.2 | | | | | |
| ANNUAL MEAN | 31.5 | | | 29.7 | | | 22.3 | | |
| HIGHEST ANNUAL MEAN | | | | | | | 29.7 | | |
| LOWEST ANNUAL MEAN | | | | | | | 14.3 | | |
| HIGHEST DAILY MEAN | 450 | Jan 5 | | 390 | Apr 29 | | 450 | Jan 5 | 1992 |
| LOWEST DAILY MEAN | 6.6 | Mar 22 | | 6.2 | Apr 6 | | 2.4 | Jul 23 | 1990 |
| ANNUAL SEVEN-DAY MINIMUM | 7.6 | Mar 18 | | 7.2 | Mar 28 | | 3.4 | May 22 | 1990 |
| INSTANTANEOUS PEAK FLOW | | | | 3260 | Sep 4 | | 3260 | Sep 4 | 1993 |
| INSTANTANEOUS PEAK STAGE | | | | 11.89 | Sep 4 | | 11.89 | Sep 4 | 1993 |
| INSTANTANEOUS LOW FLOW | | | | 6.2 | Apr 5 | | | | |
| ANNUAL RUNOFF (AC-FT) | 22840 | | | 21520 | | | 16130 | | |
| ANNUAL RUNOFF (CFSM) | 3.40 | | | 3.21 | | | 2.41 | | |
| ANNUAL RUNOFF (INCHES) | 46.31 | | | 43.64 | | | 32.71 | | |
| 10 PERCENT EXCEEDS | 61 | | | 57 | | | 42 | | |
| 50 PERCENT EXCEEDS | 20 | | | 19 | | | 14 | | |
| 90 PERCENT EXCEEDS | 10 | | | 8.9 | | | 6.1 | | |

e Estimated

RIO GRANDE DE ARECIBO BASIN

50026050 RIO CAONILLAS ABOVE LAGO CAONILLAS NEAR JAYUYA, PR

WATER-QUALITY RECORDS

LOCATION.--Lat 18°13'26", long 66°38'22", 300 ft (91 m) off Highway 531, 700 ft (213 m) upstream from Lago Caonillas, 3.3 mi (5.3 km) northwest of Jayuya plaza.

DRAINAGE AREA.--40.4 mi² (104.6 km²).

PERIOD OF RECORD.--Water years 1979 to current year.

WATER-QUALITY DATA, WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993

| DATE | TIME | DIS-CHARGE, INST. CUBIC FEET PER SECOND | SPE-CIFIC CON-DUCT-ANCE (US/CM) | PH WATER WHOLE FIELD (STAND-ARD UNITS) | TEMPER-ATURE WATER (DEG C) | TUR-BID-ITY (NTU) | OXYGEN, DIS-SOLVED (MG/L) | OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION) | OXYGEN DEMAND, CHEM-ICAL (HIGH LEVEL) (MG/L) | COLI-FORM, FECAL, UM-MF (COLS./100 ML) | STREP-TOCOC CI (COLS. PER 100 ML) |
|-----------|------|---|---------------------------------|--|----------------------------|-------------------|---------------------------|---|--|--|-----------------------------------|
| OCT 1992 | | | | | | | | | | | |
| 19... | 0945 | 115 | 175 | 7.6 | 22.0 | 23 | 6.6 | 76 | 17 | 4700 | 3900 |
| DEC 30... | 0900 | 74 | 173 | 8.0 | 21.0 | 26 | 4.0 | 46 | 34 | 41000 | 25000 |
| FEB 1993 | | | | | | | | | | | |
| 19... | 0915 | 27 | 209 | 7.7 | 21.5 | 1.7 | 4.6 | 53 | <10 | 200 | 240 |
| APR 26... | 1010 | 27 | 220 | 7.6 | 25.0 | 7.7 | 9.4 | 82 | <10 | K830 | 270 |
| JUN 02... | 1035 | 176 | 173 | 7.4 | 24.0 | 5.0 | 7.5 | 90 | 92 | K860 | 320 |
| SEP 21... | 0900 | 56 | 198 | 7.4 | 23.0 | 31 | 8.0 | 94 | <10 | 3100 | 2500 |

| DATE | HARD-NESS TOTAL (MG/L AS CaCO3) | HARD-NESS NONCARB WH WAT TOT FLD MG/L AS CaCO3 | CALCIUM DIS-SOLVED (MG/L AS Ca) | MAGNE-SIUM, DIS-SOLVED (MG/L AS Mg) | SODIUM, DIS-SOLVED (MG/L AS Na) | SODIUM AD-SORP-TION RATIO | POTAS-SIUM, DIS-SOLVED (MG/L AS K) | ALKA-LINITY WAT WH TOT FET FIELD MG/L AS CaCO3 | SULFIDE TOTAL (MG/L AS S) | SULFATE DIS-SOLVED (MG/L AS SO4) | CHLO-RIDE, DIS-SOLVED (MG/L AS Cl) |
|-----------|---------------------------------|--|---------------------------------|-------------------------------------|---------------------------------|---------------------------|------------------------------------|--|---------------------------|----------------------------------|------------------------------------|
| OCT 1992 | | | | | | | | | | | |
| 19... | 76 | 8 | 20 | 6.3 | 11 | 0.3 | 1.4 | 98 | <0.5 | 15 | 14 |
| DEC 30... | -- | -- | -- | -- | -- | -- | -- | 90 | -- | -- | -- |
| FEB 1993 | | | | | | | | | | | |
| 19... | -- | -- | -- | -- | -- | -- | -- | 76 | -- | -- | -- |
| APR 26... | 86 | 9 | 23 | 6.9 | 13 | 0.6 | 1.7 | 66 | <0.5 | 15 | 13 |
| JUN 02... | -- | -- | -- | -- | -- | -- | -- | 57 | -- | -- | -- |
| SEP 21... | 78 | 5 | 20 | 6.8 | 10 | 0.5 | 1.7 | 70 | -- | 14 | 11 |

| DATE | FLUO-RIDE, DIS-SOLVED (MG/L AS F) | SILICA, DIS-SOLVED (MG/L AS SiO2) | SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L) | SOLIDS, DIS-SOLVED (TONS PER DAY) | RESIDUE TOTAL AT 105 DEG. C, SUS-PENDED (MG/L) | NITRO-GEN, NITRATE TOTAL (MG/L AS N) | NITRO-GEN, NITRITE TOTAL (MG/L AS N) | NITRO-GEN, NO2+NO3 TOTAL (MG/L AS N) | NITRO-GEN, AMMONIA TOTAL (MG/L AS N) | NITRO-GEN, ORGANIC TOTAL (MG/L AS N) |
|-----------|-----------------------------------|-----------------------------------|---|-----------------------------------|--|--------------------------------------|--------------------------------------|--------------------------------------|--------------------------------------|--------------------------------------|
| OCT 1992 | | | | | | | | | | |
| 19... | <0.10 | 23 | 130 | 40.4 | 34 | 0.920 | 0.020 | 0.940 | 0.050 | 0.25 |
| DEC 30... | -- | -- | -- | -- | 16 | 0.490 | 0.010 | 0.500 | 0.010 | 0.59 |
| FEB 1993 | | | | | | | | | | |
| 19... | -- | -- | -- | -- | 7 | 0.590 | 0.010 | 0.600 | 0.010 | 0.19 |
| APR 26... | 0.10 | 24 | 136 | 9.93 | 14 | 0.190 | 0.010 | 0.200 | 0.030 | 0.27 |
| JUN 02... | -- | -- | -- | -- | 33 | 0.290 | 0.010 | 0.300 | 0.010 | 0.39 |
| SEP 21... | 0.20 | 23 | 129 | 19.4 | 33 | 0.490 | 0.010 | 0.500 | 0.010 | 0.19 |

K = non-ideal count

RIO GRANDE DE ARECIBO BASIN

50026050 RIO CAONILLAS ABOVE LAGO CAONILLAS NEAR JAYUYA, PR--Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993

| DATE | NITRO- GEN, AM- MONIA + ORGANIC TOTAL (MG/L AS N) | NITRO- GEN, TOTAL (MG/L AS N) | NITRO- GEN, TOTAL (MG/L AS NO3) | PHOS- PHORUS TOTAL (MG/L AS P) | ARSENIC TOTAL (UG/L AS AS) | BARIUM, TOTAL RECOV- ERABLE (UG/L AS BA) | BORON, TOTAL RECOV- ERABLE (UG/L AS B) | CADMIUM TOTAL RECOV- ERABLE (UG/L AS CD) | CHRO- MIUM, TOTAL RECOV- ERABLE (UG/L AS CR) | COPPER, TOTAL RECOV- ERABLE (UG/L AS CU) |
|-----------|---|---|---|--|-------------------------------------|---|---|---|--|---|
| OCT 1992 | | | | | | | | | | |
| 19... | 0.30 | 1.2 | 5.5 | 0.110 | <1 | <100 | <10 | <1 | <1 | <10 |
| DEC 30... | 0.60 | 1.1 | 4.9 | 0.060 | -- | -- | -- | -- | -- | -- |
| FEB 1993 | | | | | | | | | | |
| 19... | 0.20 | 0.8 | 3.5 | 0.060 | -- | -- | -- | -- | -- | -- |
| APR 26... | 0.30 | 0.6 | 3.2 | 0.070 | <1 | <100 | 20 | <1 | <1 | <10 |
| JUN 02... | 0.40 | 1.0 | 5.8 | 0.030 | -- | -- | -- | -- | -- | -- |
| SEP 21... | 0.20 | 1.3 | 4.3 | 0.080 | -- | -- | -- | -- | -- | -- |

[illegible]

RIO GRANDE DE ARECIBO BASIN

50026140 LAGO CAONILLAS AT CAONILLAS, PR

LOCATION.--Lat 18°16'43", long 66°39'24", Hydrologic Unit 21010001, at Lago Caonillas Dam on Río Caonillas, 2.9 mi (4.7 km) northeast of Plaza de Utuado, 0.3 mi (0.6 km) west from Iglesia Santa María del Monte Carmelo, and 1.8 mi (3.0 km) northwest from Hacienda Carbonell.

DRAINAGE AREA.--48.4 mi² (125.4 km²).

ELEVATION RECORDS

PERIOD OF RECORD.--March 1991 to current year.

GAGE.--Water stage recorder. Datum of gage is mean sea level.

REMARKS.--Lago Caonillas was completed in 1948. The dam is a concrete gravity structure with a total length of 815 ft (248 m), a maximum height of 235 ft (72 m), and a maximum base width of 195 ft (59 m). Nonoverflow sections on each abutment have a total length of 603 ft (184 m). The dam is the main unit of Caonillas Hydroelectric Project, and provides 49,000 acre-feet (60 hm³) of usable storage for power generation at Caonillas Power Plant No. 1 located 2.5 mi (4.0 km) downstream from the dam. The dam is owned by Puerto Rico Electric Power Authority. Gage-height and precipitation satellite telemetry at station.

EXTREMES OBSERVED FOR PERIOD OF RECORD.--Maximum elevation, 825.39 ft (251.58 m), June 7, 1993; minimum elevation, less than 771.00 ft (235.00 m), many days during water year 1991.

EXTREMES OBSERVED FOR CURRENT YEAR.--Maximum elevation, 825.39 ft (251.58 m), June 7; minimum elevation, 779.50 ft (237.59 m), Mar. 13.

Capacity Table
(based on data from Puerto Rico Electric Power Authority)

| Elevation, in feet | Contents, in acre-feet | Elevation, in feet | Contents, in acre-feet |
|--------------------|------------------------|--------------------|------------------------|
| 705 | 0 | 800 | 27,982 |
| 750 | 8,421 | 830 | 46,161 |

ELEVATION (FEET NGVD), WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993
DAILY OBSERVATION AT 24:00 VALUES

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|-------|----------|----------|----------|----------|----------|--------|----------|--------|--------|--------|----------|----------|
| 1 | 792.83 | 813.96 | 820.15 | 818.06 | 805.18 | 791.93 | 784.61 | 801.39 | A | 820.45 | 814.87 | 794.97 |
| 2 | 793.17 | 814.89 | 820.38 | 817.98 | 804.68 | 791.74 | 784.78 | 803.82 | A | 820.10 | 814.25 | 794.28 |
| 3 | 793.32 | 815.57 | 820.60 | 818.03 | 804.04 | 791.20 | 784.96 | 807.94 | 824.89 | 819.84 | 813.66 | 794.42 |
| 4 | 793.24 | 815.22 | 820.83 | 818.22 | 803.09 | 789.99 | 785.13 | 809.68 | 824.79 | 820.11 | 812.61 | 795.08 |
| 5 | 792.97 | 815.72 | 821.03 | 818.20 | 802.11 | 788.70 | 785.30 | 810.44 | 825.06 | 820.20 | 811.42 | 795.85 |
| 6 | 794.39 | 815.90 | 821.22 | 818.09 | 801.47 | 787.36 | 785.47 | 812.23 | 825.30 | 819.90 | 810.34 | 796.32 |
| 7 | 793.80 | 816.24 | 821.40 | 817.48 | 800.92 | 785.94 | 785.62 | 813.32 | 825.25 | A | 809.62 | 796.31 |
| 8 | 794.61 | 816.55 | 821.24 | 816.67 | 799.78 | 784.60 | 785.83 | 814.01 | 825.22 | A | 808.88 | 795.98 |
| 9 | 795.49 | 816.16 | 820.36 | 816.82 | 799.23 | 783.64 | 786.19 | 814.65 | 825.18 | 819.43 | 807.60 | 796.04 |
| 10 | 795.96 | 816.49 | 819.78 | 816.74 | 798.72 | 782.91 | 786.42 | 815.24 | 825.13 | 819.15 | 806.29 | 796.23 |
| 11 | 795.74 | 816.80 | 819.95 | 815.97 | 798.09 | 781.47 | 787.03 | 815.72 | 824.88 | 819.36 | 805.15 | 796.44 |
| 12 | 796.20 | 817.14 | 820.10 | 815.04 | 797.47 | 780.70 | 787.90 | 816.13 | 824.25 | 819.35 | 803.74 | 796.50 |
| 13 | 796.57 | 817.09 | 820.57 | 814.59 | 796.90 | 779.93 | 788.82 | A | 824.18 | 819.06 | 802.44 | 796.65 |
| 14 | 796.81 | 817.16 | 821.29 | 814.29 | 796.99 | A | 790.59 | A | 824.00 | 818.46 | 801.42 | 796.61 |
| 15 | 796.16 | 817.42 | 821.71 | 813.50 | 796.84 | A | 791.91 | A | 823.85 | 818.36 | 801.45 | 796.63 |
| 16 | 796.79 | 817.93 | 821.93 | 812.53 | 796.35 | 779.96 | 792.89 | A | 823.56 | 818.04 | 800.78 | 796.80 |
| 17 | 798.35 | 817.27 | 822.17 | 812.29 | 795.77 | 780.22 | 793.33 | A | 823.25 | 817.41 | 800.66 | 796.94 |
| 18 | 799.21 | 816.69 | 822.38 | 812.07 | 795.18 | 781.26 | 793.64 | A | 822.98 | 817.21 | 799.84 | 796.90 |
| 19 | 799.74 | 816.95 | 822.58 | 811.19 | 794.53 | 781.50 | 793.92 | A | 823.08 | 816.43 | 798.89 | 797.29 |
| 20 | 800.11 | 816.62 | 822.77 | 810.22 | 794.25 | 781.74 | 794.23 | A | 823.55 | 816.39 | 797.90 | 797.28 |
| 21 | 799.45 | 817.02 | 822.57 | 809.21 | 794.05 | 782.05 | 794.49 | A | 823.29 | 815.99 | 797.07 | 796.80 |
| 22 | 799.87 | 817.35 | 821.97 | 809.34 | 794.09 | 782.27 | 794.72 | A | 822.99 | A | 796.78 | 796.66 |
| 23 | 800.50 | 817.64 | 821.53 | 809.46 | 793.90 | 782.49 | 794.92 | A | 822.70 | A | 796.26 | 795.84 |
| 24 | 802.79 | 817.91 | 820.69 | 809.56 | 793.16 | 782.73 | 795.22 | A | 822.42 | A | 794.41 | 796.22 |
| 25 | 803.96 | 818.16 | 820.11 | 809.67 | 792.25 | 782.96 | 795.47 | A | 822.07 | A | 794.35 | 796.32 |
| 26 | 804.58 | 818.38 | 819.83 | 809.12 | 791.60 | 783.20 | 795.67 | A | 821.68 | A | 793.40 | 796.05 |
| 27 | 805.37 | 818.63 | 820.00 | 808.06 | 791.70 | 783.57 | 795.85 | A | 821.36 | A | 793.46 | 795.11 |
| 28 | 805.91 | 819.08 | 819.79 | 807.48 | 791.78 | 783.79 | 796.19 | A | 821.14 | A | 793.60 | 795.03 |
| 29 | 808.91 | 819.48 | 819.29 | 807.70 | --- | 783.99 | 798.48 | A | 820.94 | 815.99 | 793.92 | 795.26 |
| 30 | 810.24 | 819.85 | 818.58 | 805.62 | --- | 784.20 | 799.84 | A | 820.76 | 815.65 | 794.23 | 795.48 |
| 31 | 811.69 | --- | 818.09 | 805.98 | --- | 784.42 | --- | A | --- | 815.22 | 794.67 | --- |
| TOTAL | 24768.73 | 24511.27 | 25444.89 | 25199.18 | 22324.12 | --- | 23729.42 | --- | --- | --- | 24863.96 | 23882.29 |
| MEAN | 798.99 | 817.04 | 820.80 | 812.88 | 797.29 | --- | 790.98 | --- | --- | --- | 802.06 | 796.08 |
| MAX | 811.69 | 819.85 | 822.77 | 818.22 | 805.18 | --- | 799.84 | --- | --- | --- | 814.87 | 797.29 |
| MIN | 792.83 | 813.96 | 818.09 | 805.62 | 791.60 | --- | 784.61 | --- | --- | --- | 793.40 | 794.28 |

A No gage-height record

RIO GRANDE DE ARECIBO BASIN

50027250 RIO GRANDE DE ARECIBO BELOW LAGO DOS BOCAS NEAR FLORIDA, PR

WATER-QUALITY RECORDS

LOCATION.--Lat 18°20'50", long 66°40'02", at pedestrian bridge, 0.7 mi (1.1 km) downstream from Lago Dos Bocas and 6.6 mi (10.6 km) west of Florida plaza.

DRAINAGE AREA.--169 mi² (436 km²) does not include 6.0 mi² (15.6 km²) above Lago Garzas.

PERIOD OF RECORD.--Water years 1970-71, 1974 to current year.

WATER-QUALITY DATA, WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993

| DATE | TIME | DIS- CHARGE, INST. CUBIC FEET PER SECOND | SPE- CIFIC CON- DUCT- ANCE (US/CM) | PH WATER WHOLE FIELD (STAND- ARD UNITS) | TEMPER- ATURE WATER (DEG C) | TUR- BID- ITY (NTU) | OXYGEN, DIS- SOLVED (MG/L) | OXYGEN, DIS- SOLVED (PER- CENT SATUR- ATION) | OXYGEN DEMAND, CHEM- ICAL (HIGH LEVEL) (MG/L) | COLI- FORM, FECAL, 0.45 UM-MF (COLS./ 100 ML) | STREP- TOCOCCI FECAL, (COLS. PER 100 ML) |
|----------|------|--|---|---|--------------------------------------|------------------------------|-------------------------------------|--|---|---|---|
| OCT 1992 | | | | | | | | | | | |
| 22... | 0850 | 710 | 179 | 6.9 | 26.5 | 36 | 4.6 | 57 | <10 | 540 | 410 |
| DEC | | | | | | | | | | | |
| 29... | 0935 | 21 | 191 | 7.5 | 23.5 | 11 | 2.2 | 26 | 31 | 220 | 310 |
| FEB 1993 | | | | | | | | | | | |
| 10... | 1000 | E800 | 209 | 7.0 | 24.0 | 8.1 | 5.4 | 32 | 27 | K690 | 50 |
| APR | | | | | | | | | | | |
| 21... | 1045 | 1660 | 180 | 6.6 | 24.0 | 120 | 6.3 | 24 | 27 | 200 | 320 |
| JUN | | | | | | | | | | | |
| 10... | 1030 | E2000 | 181 | 6.4 | 26.0 | 53 | 5.6 | 60 | 12 | K190 | 300 |
| SEP | | | | | | | | | | | |
| 16... | 1245 | E600 | 192 | 4.7 | 27.0 | 13 | 4.9 | 59 | <10 | 220 | K160 |

| DATE | HARD- NESS TOTAL (MG/L AS CaCO3) | HARD- NESS NONCARB WH WAT TOT FLD MG/L AS CaCO3 | CALCIUM DIS- SOLVED (MG/L AS Ca) | MAGNE- SIUM, DIS- SOLVED (MG/L AS Mg) | SODIUM, DIS- SOLVED (MG/L AS Na) | SODIUM AD- SORP- TION RATIO | POTAS- SIUM, DIS- SOLVED (MG/L AS K) | ALKA- LITY WAT WH TOT FET MG/L AS CaCO3 | SULFIDE TOTAL (MG/L AS S) | SULFATE DIS- SOLVED (MG/L AS SO4) | CHLO- RIDE, DIS- SOLVED (MG/L AS Cl) |
|----------|---|---|--|--|--|---|---|--|------------------------------------|---|---|
| OCT 1992 | | | | | | | | | | | |
| 22... | 69 | 7 | 19 | 5.3 | 8.5 | 0.4 | 2.5 | 64 | <0.5 | 11 | 9.6 |
| DEC | | | | | | | | | | | |
| 29... | -- | -- | -- | -- | -- | -- | -- | 70 | -- | -- | -- |
| FEB 1993 | | | | | | | | | | | |
| 10... | -- | -- | -- | -- | -- | -- | -- | 72 | -- | -- | -- |
| APR | | | | | | | | | | | |
| 21... | 60 | 4 | 16 | 4.8 | 9.6 | 0.5 | 2.5 | 64 | <0.5 | 10 | 9.7 |
| JUN | | | | | | | | | | | |
| 10... | -- | -- | -- | -- | -- | -- | -- | 64 | -- | -- | -- |
| SEP | | | | | | | | | | | |
| 16... | 75 | 10 | 20 | 6.1 | 9.2 | 0.5 | 2.2 | 59 | -- | 12 | 10 |

| DATE | FLUO- RIDE, DIS- SOLVED (MG/L AS F) | SILICA, DIS- SOLVED (MG/L AS SiO2) | SOLIDS, SUM OF CONSTI- TUENTS, DIS- SOLVED (MG/L) | SOLIDS, DIS- SOLVED (TONS PER DAY) | RESIDUE TOTAL AT 105 DEG. C, SUS- PENDE (MG/L) | NITRO- GEN, NITRATE TOTAL (MG/L AS N) | NITRO- GEN, NITRITE TOTAL (MG/L AS N) | NITRO- GEN, NO2+NO3 TOTAL (MG/L AS N) | NITRO- GEN, AMMONIA TOTAL (MG/L AS N) | NITRO- GEN, ORGANIC TOTAL (MG/L AS N) |
|----------|--|--|---|---|--|--|--|--|--|--|
| OCT 1992 | | | | | | | | | | |
| 22... | 0.10 | 20 | 114 | 219 | 13 | 0.940 | 0.030 | 0.970 | 0.050 | 0.35 |
| DEC | | | | | | | | | | |
| 29... | -- | -- | -- | -- | 17 | 0.690 | 0.010 | 0.700 | 0.030 | 0.67 |
| FEB 1993 | | | | | | | | | | |
| 10... | -- | -- | -- | -- | 12 | 0.590 | 0.010 | 0.600 | 0.030 | 0.07 |
| APR | | | | | | | | | | |
| 21... | 0.10 | 18 | 109 | 490 | 29 | 0.170 | 0.030 | 0.200 | 0.130 | 0.37 |
| JUN | | | | | | | | | | |
| 10... | -- | -- | -- | -- | 16 | 0.590 | 0.010 | 0.600 | 0.030 | 0.37 |
| SEP | | | | | | | | | | |
| 16... | 0.10 | 21 | 116 | 188 | 25 | 0.630 | 0.070 | 0.700 | 0.210 | 0.63 |

E = estimate

K = non-ideal count

WATER-QUALITY DATA, WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993

[illegible]

RIO GRANDE DE ARECIBO BASIN

50027750 RIO GRANDE DE ARECIBO ABOVE ARECIBO, PR

LOCATION.--Lat 18°25'22", long 66°41'58", Hydrologic Unit 21010002, 0.5 mi (0.8 km) upstream from Río Tanamá, 3.6 mi (5.8 km) south of Arecibo and 4.9 mi (7.9 km) above mouth, and 10.4 mi (16.7 km) downstream from Lago Dos Bocas.

DRAINAGE AREA.--200 mi² (520 km²), approximately, of which an undetermined amount does not contribute directly to surface runoff.

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--April 1982 to current year.

GAGE.--Water-stage recorder. Elevation of gage is 30 ft (9 m), from topographic map.

REMARKS.--Records fair except those for estimated daily discharges, which are poor. Flow regulated by Lago Dos Bocas Dam 10.4 mi (16.7 km) upstream from gage. Gage-height and precipitation satellite telemetry at station.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993
DAILY MEAN VALUES

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| 1 | 486 | 275 | 148 | 269 | 628 | 226 | 194 | 265 | e160 | 170 | 164 | 478 |
| 2 | 487 | 723 | 478 | 281 | 733 | 391 | 80 | e450 | e145 | 58 | 241 | 444 |
| 3 | 431 | 283 | 487 | 265 | 291 | 438 | 60 | e620 | 477 | 539 | 514 | 436 |
| 4 | 485 | 503 | 500 | 305 | 532 | 440 | 64 | e625 | 372 | 275 | 334 | 87 |
| 5 | 552 | 662 | 119 | 255 | 312 | 330 | 59 | e490 | 90 | 54 | 453 | 54 |
| 6 | 460 | 741 | 108 | 134 | 256 | 60 | 74 | e320 | 174 | 162 | 292 | 225 |
| 7 | 639 | 411 | 65 | 401 | 228 | 173 | 58 | e440 | 510 | 322 | 155 | 831 |
| 8 | 734 | 91 | 356 | 512 | 664 | 170 | 81 | e110 | 462 | 321 | 449 | 617 |
| 9 | 772 | 508 | 739 | 607 | 453 | 49 | 79 | e390 | 393 | 522 | 101 | 591 |
| 10 | 613 | 522 | 593 | 481 | 472 | 72 | 69 | e350 | 461 | 110 | 649 | 652 |
| 11 | 525 | 363 | 324 | 185 | 95 | 472 | 72 | e400 | 413 | 325 | 763 | 364 |
| 12 | 691 | 414 | 77 | 563 | 102 | 607 | 245 | e300 | 117 | 455 | 493 | 74 |
| 13 | 414 | 157 | 63 | 498 | 253 | 643 | 416 | e120 | 616 | 392 | 766 | 49 |
| 14 | 593 | 97 | 364 | 496 | 249 | 662 | 397 | e200 | 519 | 472 | 287 | 170 |
| 15 | 694 | 147 | 1330 | 664 | 62 | 624 | 645 | e120 | 529 | 313 | 60 | 418 |
| 16 | 520 | 57 | 478 | 273 | 195 | 135 | 856 | e200 | 260 | 295 | 176 | 263 |
| 17 | 111 | 538 | 625 | 70 | 270 | 232 | 451 | e440 | 63 | 70 | 423 | 307 |
| 18 | 608 | 572 | 688 | 505 | 299 | 93 | 507 | e420 | 121 | 45 | 381 | 337 |
| 19 | 607 | 363 | 329 | 501 | 374 | 66 | 452 | e300 | 222 | 299 | 373 | 277 |
| 20 | 686 | 478 | 122 | 628 | 188 | 183 | 281 | e140 | 311 | 609 | 86 | 147 |
| 21 | 522 | 250 | 424 | 547 | 161 | 79 | 500 | 288 | 686 | 96 | 67 | e354 |
| 22 | 611 | 134 | 346 | 196 | 123 | 70 | 542 | 608 | 603 | 202 | 56 | e622 |
| 23 | 422 | 91 | 275 | 69 | 176 | 161 | 317 | 332 | 709 | 69 | 254 | e508 |
| 24 | 155 | 420 | 269 | 151 | 363 | 214 | 154 | 292 | 129 | 45 | 197 | e342 |
| 25 | 77 | 352 | 584 | 67 | 351 | 499 | 72 | 244 | 78 | 40 | 733 | e56 |
| 26 | 64 | 84 | 436 | 327 | 205 | 159 | 552 | e300 | 174 | 40 | 404 | e49 |
| 27 | 264 | 244 | 423 | 241 | 62 | 78 | 696 | e490 | 239 | 37 | 250 | 642 |
| 28 | 304 | 192 | 500 | 352 | 47 | 68 | 295 | e510 | 467 | 519 | 57 | 263 |
| 29 | 203 | 102 | 616 | 411 | --- | 63 | 358 | e480 | 557 | 230 | 50 | 394 |
| 30 | 777 | 283 | 772 | 210 | --- | 73 | 476 | e320 | 243 | 158 | 217 | 129 |
| 31 | 579 | --- | 616 | 567 | --- | 81 | --- | e220 | --- | 209 | 306 | --- |
| TOTAL | 15086 | 10057 | 13254 | 11031 | 8144 | 7611 | 9102 | 10784 | 10300 | 7453 | 9751 | 10180 |
| MEAN | 487 | 335 | 428 | 356 | 291 | 246 | 303 | 348 | 343 | 240 | 315 | 339 |
| MAX | 777 | 741 | 1330 | 664 | 733 | 662 | 856 | 625 | 709 | 609 | 766 | 831 |
| MIN | 64 | 57 | 63 | 67 | 47 | 49 | 58 | 110 | 63 | 37 | 50 | 49 |
| AC-FT | 29920 | 19950 | 26290 | 21880 | 16150 | 15100 | 18050 | 21390 | 20430 | 14780 | 19340 | 20190 |
| CFSM | 2.43 | 1.68 | 2.14 | 1.78 | 1.45 | 1.23 | 1.52 | 1.74 | 1.72 | 1.20 | 1.57 | 1.70 |
| IN. | 2.81 | 1.87 | 2.47 | 2.05 | 1.51 | 1.42 | 1.69 | 2.01 | 1.92 | 1.39 | 1.81 | 1.89 |

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1982 - 1993, BY WATER YEAR (WY)

| | 704 | 614 | 320 | 264 | 246 | 228 | 408 | 670 | 393 | 277 | 279 | 485 |
|------|------|------|------|------|------|------|------|------|------|------|------|------|
| MEAN | 1984 | 1413 | 570 | 437 | 428 | 351 | 617 | 2000 | 683 | 374 | 474 | 1080 |
| MAX | 1986 | 1986 | 1988 | 1988 | 1988 | 1985 | 1986 | 1986 | 1987 | 1987 | 1988 | 1984 |
| MIN | 221 | 247 | 90.3 | 167 | 111 | 114 | 207 | 185 | 195 | 161 | 154 | 266 |
| (WY) | 1992 | 1992 | 1992 | 1989 | 1992 | 1987 | 1984 | 1989 | 1990 | 1990 | 1990 | 1992 |

| SUMMARY STATISTICS | FOR 1992 CALENDAR YEAR | FOR 1993 WATER YEAR | WATER YEARS 1982 - 1993 |
|--------------------------|------------------------|---------------------|-------------------------|
| ANNUAL TOTAL | 123358 | 122753 | |
| ANNUAL MEAN | 337 | 336 | 408 |
| HIGHEST ANNUAL MEAN | | | 729 |
| LOWEST ANNUAL MEAN | | | 279 |
| HIGHEST DAILY MEAN | 2030 | May 24 | 14800 |
| LOWEST DAILY MEAN | 33 | Feb 4 | 33 |
| ANNUAL SEVEN-DAY MINIMUM | 50 | Feb 14 | 68 |
| INSTANTANEOUS PEAK FLOW | | | 2800 |
| INSTANTANEOUS PEAK STAGE | | 7.51 | May 28 |
| INSTANTANEOUS LOW FLOW | | | 18.22 |
| ANNUAL RUNOFF (AC-FT) | 244700 | 243500 | 30 |
| ANNUAL RUNOFF (CFSM) | 1.69 | 1.68 | 2.04 |
| ANNUAL RUNOFF (INCHES) | 22.94 | 22.83 | 27.71 |
| 10 PERCENT EXCEEDS | 674 | 623 | 814 |
| 50 PERCENT EXCEEDS | 292 | 312 | 281 |
| 90 PERCENT EXCEEDS | 48 | 69 | 63 |

e Estimated

RIO GRANDE DE ARRECIBO BASIN

73

50028000 RIO TANAMA NEAR UTUADO, PR

LOCATION.--Lat 18°18'02", long 66°46'58", Hydrologic Unit 21010001, on downstream side of left abutment of bridge on Highway 111, 1.2 mi (1.9 km) upstream from natural tunnel, 1.5 mi (2.4 km) northeast of Angeles, and 5.8 mi (9.3 km) northwest of Utuado.

DRAINAGE AREA.--18.4 mi² (47.7 km²).

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--June 1944 to June 1958 (daily stage and two to four measurements per month by Puerto Rico Water Resources Authority), November 1959 to current year.

GAGE.--Water-stage recorder and crest-stage gage. Datum of gage is 938.32 ft (286.000 m) above mean sea level. Datum of gage was lowered 3.00 ft (0.914 m) on Oct. 1978. Prior to Nov. 17, 1966, non-recording gage and Nov. 17, 1966 to Sept. 30, 1978 recording gage, both at present site.

REMARKS.--Records fair except those for estimated daily discharges, which are poor.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993
DAILY MEAN VALUES

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|-------|------|------|------|------|------|------|------|------|------|------|------|------|
| 1 | e157 | e82 | 39 | 29 | 51 | 20 | 21 | 45 | 50 | 24 | 17 | 88 |
| 2 | e98 | e64 | 38 | 27 | 30 | 21 | 19 | 77 | 45 | 24 | 17 | 63 |
| 3 | e65 | 61 | 43 | 27 | 34 | 19 | 18 | 106 | 42 | 23 | 17 | 44 |
| 4 | 97 | 65 | 39 | 27 | 27 | 19 | 17 | 61 | 40 | 24 | 17 | 34 |
| 5 | 77 | 57 | 44 | 26 | 26 | 19 | 17 | 66 | 37 | 25 | 17 | 57 |
| 6 | 62 | 55 | 42 | 26 | 25 | 19 | 19 | 60 | 36 | 24 | 26 | 342 |
| 7 | 51 | 53 | 36 | 27 | 24 | 20 | 17 | 70 | 35 | 26 | 21 | 221 |
| 8 | 112 | 52 | 35 | 28 | 23 | 20 | 32 | 54 | 35 | 25 | 17 | e106 |
| 9 | e62 | 51 | 34 | 25 | 23 | 24 | 19 | 61 | 42 | 22 | 33 | e71 |
| 10 | 345 | 50 | 33 | 25 | 22 | 23 | 19 | 53 | 39 | 21 | 28 | 87 |
| 11 | e109 | 48 | 33 | 25 | 21 | 24 | 43 | 46 | 35 | 23 | 22 | 68 |
| 12 | e78 | 47 | 32 | 25 | 22 | 21 | 44 | 42 | 38 | 22 | 20 | 52 |
| 13 | 87 | 50 | 59 | 25 | 21 | 19 | 66 | 40 | 33 | 20 | 17 | 52 |
| 14 | 108 | 56 | 112 | 24 | 21 | 19 | 241 | 38 | 30 | 23 | 16 | 44 |
| 15 | 76 | 50 | 64 | 25 | 20 | 23 | e54 | 38 | 29 | 20 | 17 | 40 |
| 16 | 87 | 64 | 38 | 23 | 23 | 21 | 37 | 58 | 30 | 21 | 62 | 38 |
| 17 | 112 | 53 | 35 | 22 | 28 | 20 | 59 | 41 | 26 | 18 | 29 | 37 |
| 18 | e114 | 47 | 33 | 22 | 21 | 19 | 41 | 37 | 25 | 18 | 22 | e38 |
| 19 | 78 | 46 | 34 | 22 | 21 | 18 | e35 | 36 | 51 | 18 | 21 | e36 |
| 20 | 66 | 53 | 34 | 21 | 29 | 18 | e33 | 38 | 40 | 19 | 19 | e44 |
| 21 | 61 | 46 | 33 | 21 | 27 | 17 | e94 | 32 | 28 | 20 | 19 | e36 |
| 22 | 84 | 46 | 36 | e22 | 22 | 17 | 47 | 31 | 26 | 26 | 19 | e50 |
| 23 | 80 | 44 | 34 | e25 | 21 | 16 | 38 | 108 | 25 | 23 | 19 | 56 |
| 24 | 82 | 43 | 32 | e25 | 20 | 17 | 37 | 51 | 24 | 23 | 17 | 43 |
| 25 | 77 | 41 | 31 | e24 | 20 | 21 | 32 | 83 | 24 | 20 | 19 | 37 |
| 26 | e68 | 40 | 51 | e22 | 20 | 17 | 26 | 91 | 23 | 20 | 19 | 38 |
| 27 | e59 | 47 | 40 | e21 | 19 | 37 | 36 | 65 | 23 | 18 | 16 | 35 |
| 28 | e54 | 52 | 34 | e21 | 19 | 34 | 33 | 119 | 22 | 17 | 72 | 37 |
| 29 | 55 | 44 | 35 | 46 | --- | 19 | 96 | 68 | 50 | 16 | 104 | 34 |
| 30 | 126 | 41 | 32 | 59 | --- | 72 | 72 | 91 | 35 | 17 | 56 | 31 |
| 31 | 77 | --- | 30 | 48 | --- | 33 | --- | 66 | --- | 16 | 46 | --- |
| TOTAL | 2864 | 1548 | 1245 | 835 | 680 | 706 | 1362 | 1872 | 1018 | 656 | 861 | 1959 |
| MEAN | 92.4 | 51.6 | 40.2 | 26.9 | 24.3 | 22.8 | 45.4 | 60.4 | 33.9 | 21.2 | 27.8 | 65.3 |
| MAX | 345 | 82 | 112 | 59 | 51 | 72 | 241 | 119 | 51 | 26 | 104 | 342 |
| MIN | 51 | 40 | 30 | 21 | 19 | 16 | 17 | 31 | 22 | 16 | 16 | 31 |
| AC-FT | 5680 | 3070 | 2470 | 1660 | 1350 | 1400 | 2700 | 3710 | 2020 | 1300 | 1710 | 3890 |
| CFSM | 5.02 | 2.80 | 2.18 | 1.46 | 1.32 | 1.24 | 2.47 | 3.28 | 1.84 | 1.15 | 1.51 | 3.55 |
| IN. | 5.79 | 3.13 | 2.52 | 1.69 | 1.37 | 1.43 | 2.75 | 3.78 | 2.06 | 1.33 | 1.74 | 3.96 |

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1960 - 1993, BY WATER YEAR (WY)

| | MEAN | 81.1 | 69.9 | 43.2 | 29.3 | 25.1 | 24.8 | 37.7 | 59.2 | 43.0 | 37.4 | 47.0 | 74.5 |
|------|------|------|------|------|------|------|------|------|------|------|------|------|------|
| MAX | 195 | 159 | 121 | 50.1 | 40.5 | 71.2 | 142 | 193 | 116 | 65.7 | 110 | 177 | |
| (WY) | 1990 | 1969 | 1966 | 1966 | 1961 | 1972 | 1969 | 1963 | 1979 | 1981 | 1979 | 1961 | |
| MIN | 25.4 | 29.3 | 21.5 | 18.0 | 13.2 | 11.0 | 9.70 | 12.4 | 16.5 | 19.5 | 24.3 | 27.6 | |
| (WY) | 1963 | 1979 | 1965 | 1974 | 1965 | 1984 | 1984 | 1977 | 1977 | 1976 | 1976 | 1986 | |

SUMMARY STATISTICS

FOR 1992 CALENDAR YEAR

FOR 1993 WATER YEAR

WATER YEARS 1960 - 1993

| | | | |
|--------------------------|---------|--------|-------|
| ANNUAL TOTAL | 16471.5 | 15606 | |
| ANNUAL MEAN | 45.0 | 42.8 | 47.8 |
| HIGHEST ANNUAL MEAN | | | 71.1 |
| LOWEST ANNUAL MEAN | | | 29.9 |
| HIGHEST DAILY MEAN | 345 | Oct 10 | 2170 |
| LOWEST DAILY MEAN | 9.6 | Mar 24 | 6.5 |
| ANNUAL SEVEN-DAY MINIMUM | 11 | Mar 18 | 7.4 |
| INSTANTANEOUS PEAK FLOW | | | 6770 |
| INSTANTANEOUS PEAK STAGE | | | 15.15 |
| INSTANTANEOUS LOW FLOW | | | 6.6 |
| ANNUAL RUNOFF (AC-FT) | 32670 | 30950 | 34600 |
| ANNUAL RUNOFF (CFSM) | 2.45 | 2.32 | 2.60 |
| ANNUAL RUNOFF (INCHES) | 33.30 | 31.55 | 35.26 |
| 10 PERCENT EXCEEDS | 83 | 77 | 84 |
| 50 PERCENT EXCEEDS | 36 | 34 | 33 |
| 90 PERCENT EXCEEDS | 15 | 19 | 17 |

e Estimated

RIO GRANDE DE ARECIBO BASIN

50028000 RIO TANAMA NEAR UTUADO, PR--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Water years 1958 to current year.

PERIOD OF DAILY RECORD.--

SUSPENDED SEDIMENT DISCHARGE: January 1968 to September 1993.

INSTRUMENTATION.--US D-49 Sediment sampler since October 1968. Automatic sediment sampler since 1990.

REMARKS.--Sediment samples were collected by a local observer on a weekly basis and during high flow events. Estimates for period of missing daily record were made from a sediment transport curve developed from a period of record over 5 years.

EXTREMES FOR PERIOD OF DAILY RECORD.--

SEDIMENT CONCENTRATIONS: Maximum daily mean, 20,400 mg/L November 27, 1968; minimum daily mean, 0 mg/L during water year 1985.

SEDIMENT LOADS: Maximum daily, 167,000 tons (152,000 tonnes) May 18, 1985, minimum daily, 0.0 ton (0.0 tonne) several days during many years.

EXTREMES FOR WATER YEAR 1993.--

SEDIMENT CONCENTRATIONS: Maximum daily mean, 1,680 mg/L October 10, 1992; minimum daily mean, 2.0 mg/L several days.

SEDIMENT LOADS: Maximum daily, 9,700 tons (8,800 tonnes) October 10, 1992; minimum daily, 0.10 ton (0.09 tonne) several days.

WATER-QUALITY DATA, WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993

| DATE | TIME | DIS- CHARGE, INST. CUBIC FEET PER SECOND | SPE- CIFIC CON- DUCT- ANCE (US/CM) | PH WATER WHOLE FIELD (STAND- ARD UNITS) | TEMPER- ATURE WATER (DEG C) | TUR- BID- ITY (NTU) | OXYGEN, DIS- SOLVED (MG/L) | OXYGEN, DIS- SOLVED (PER- CENT SATUR- ATION) | OXYGEN DEMAND, CHEM- ICAL (HIGH LEVEL) (MG/L) | COLI- FORM, FECAL, 0.45 UM-MP (COLS./ 100 ML) | STREP- TOCOCCI FECAL, (COLS. PER 100 ML) |
|----------|------|--|---|---|--------------------------------------|------------------------------|-------------------------------------|--|---|---|---|
| OCT 1992 | | | | | | | | | | | |
| 26... | 0940 | 63 | 156 | 7.0 | 23.0 | 14 | 5.2 | 61 | <10 | K1400 | 3000 |
| DEC | | | | | | | | | | | |
| 18... | 0905 | 33 | 161 | 7.4 | 19.5 | 3.2 | 7.4 | 83 | 22 | 310 | 1500 |
| FEB 1993 | | | | | | | | | | | |
| 25... | 0955 | 19 | 166 | 7.9 | 19.5 | 1.2 | 6.2 | 69 | <10 | 80 | 260 |
| MAY | | | | | | | | | | | |
| 03... | 0955 | 53 | 127 | 6.9 | 22.0 | 84 | 4.1 | 61 | 28 | K8000 | 2100 |
| JUN | | | | | | | | | | | |
| 18... | 1005 | 26 | 185 | 7.6 | 23.5 | 2.4 | 8.6 | 99 | <10 | K1600 | 280 |
| SEP | | | | | | | | | | | |
| 22... | 0940 | 37 | 152 | 7.3 | 22.5 | 4.2 | 8.5 | 97 | <10 | K1400 | 1600 |

| DATE | HARD- NESS TOTAL (MG/L AS CACO3) | HARD- NESS NONCARB WH WAT TOT FLD MG/L AS CACO3 | CALCIUM DIS- SOLVED (MG/L AS CA) | MAGNE- SIUM, DIS- SOLVED (MG/L AS MG) | SODIUM, DIS- SOLVED (MG/L AS NA) | SODIUM AD- SORP- TION RATIO | POTAS- SIUM, DIS- SOLVED (MG/L AS K) | ALKA- LINITY WAT WH TOT FET MG/L AS CACO3 | SULFIDE TOTAL (MG/L AS S) | SULFATE DIS- SOLVED (MG/L AS SO4) | CHLO- RIDE, DIS- SOLVED (MG/L AS CL) |
|----------|---|---|--|--|--|---|---|--|------------------------------------|---|---|
| OCT 1992 | | | | | | | | | | | |
| 26... | 63 | 10 | 16 | 5.6 | 7.3 | 0.4 | 2.3 | 56 | <0.5 | 9.3 | 7.7 |
| DEC | | | | | | | | | | | |
| 18... | -- | -- | -- | -- | -- | -- | -- | 54 | -- | -- | -- |
| FEB 1993 | | | | | | | | | | | |
| 25... | -- | -- | -- | -- | -- | -- | -- | 59 | -- | -- | -- |
| MAY | | | | | | | | | | | |
| 03... | 43 | 6 | 11 | 3.7 | 5.7 | 0.4 | 2.7 | 56 | <0.5 | 10 | 6.3 |
| JUN | | | | | | | | | | | |
| 18... | -- | -- | -- | -- | -- | -- | -- | 59 | -- | -- | -- |
| SEP | | | | | | | | | | | |
| 22... | 53 | 9 | 13 | 5.0 | 6.9 | 0.4 | 2.6 | 78 | -- | 12 | 8.3 |

K = non-ideal count

50028000 RIO TANAMA NEAR UTUADO, PR--Continued

WATER-QUALITY RECORDS

| DATE | FLUO- RIDE, DIS- SOLVED (MG/L AS F) | SILICA, DIS- SOLVED (MG/L SIO2) | SOLIDS, SUM OF CONSTI- TUENTS, DIS- SOLVED (MG/L) | SOLIDS, DIS- SOLVED (TONS PER DAY) | RESIDUE TOTAL AT 105 DEG. C, SUS- PENDED (MG/L) | NITRO- GEN, NITRATE TOTAL (MG/L AS N) | NITRO- GEN, NITRITE TOTAL (MG/L AS N) | NITRO- GEN, NO2+NO3 TOTAL (MG/L AS N) | NITRO- GEN, AMMONIA TOTAL (MG/L AS N) | NITRO- GEN, ORGANIC TOTAL (MG/L AS N) |
|-----------|--|---|---|---|---|--|--|--|--|--|
| OCT 1992 | | | | | | | | | | |
| 26... | <0.10 | 26 | 108 | 18.4 | 14 | 0.290 | 0.010 | 0.300 | 0.010 | 0.99 |
| DEC 18... | -- | -- | -- | -- | 18 | 0.590 | 0.010 | 0.600 | 0.040 | 0.46 |
| FEB 1993 | | | | | | | | | | |
| 25... | -- | -- | -- | -- | <1 | 0.590 | 0.010 | 0.600 | 0.010 | 0.69 |
| MAY 03... | 0.10 | 19 | 80 | 11.5 | 76 | 0.790 | 0.010 | 0.800 | 0.020 | 0.48 |
| JUN 18... | -- | -- | -- | -- | 7 | 0.590 | 0.010 | 0.600 | 0.030 | 0.77 |
| SEP 22... | 0.10 | 23 | 118 | 11.8 | 10 | 0.490 | 0.010 | 0.500 | 0.010 | 0.89 |

| DATE | NITRO- GEN, AM- MONIA + ORGANIC TOTAL (MG/L AS N) | NITRO- GEN, TOTAL (MG/L AS N) | NITRO- GEN, TOTAL (MG/L AS NO3) | PHOS- PHORUS TOTAL (MG/L AS P) | ARSENIC TOTAL (UG/L AS AS) | BARIUM, TOTAL RECOV- ERABLE (UG/L AS BA) | BORON, TOTAL RECOV- ERABLE (UG/L AS B) | CADMIUM TOTAL RECOV- ERABLE (UG/L AS CD) | CHRO- MIUM, TOTAL RECOV- ERABLE (UG/L AS CR) | COPPER, TOTAL RECOV- ERABLE (UG/L AS CU) |
|-----------|---|---|---|--|-------------------------------------|---|---|---|--|---|
| OCT 1992 | | | | | | | | | | |
| 26... | 1.0 | 1.3 | 5.8 | 0.020 | <1 | <100 | <10 | <1 | <1 | 10 |
| DEC 18... | 0.50 | 1.1 | 4.9 | 0.040 | -- | -- | -- | -- | -- | -- |
| FEB 1993 | | | | | | | | | | |
| 25... | 0.70 | 1.3 | 5.8 | 0.030 | -- | -- | -- | -- | -- | -- |
| MAY 03... | 0.50 | 1.3 | 6.2 | 0.020 | <1 | <100 | 20 | <1 | 2 | 10 |
| JUN 18... | 0.80 | 1.5 | 6.2 | 0.020 | -- | -- | -- | -- | -- | -- |
| SEP 22... | 0.90 | 1.4 | 6.7 | 0.030 | -- | -- | -- | -- | -- | -- |

[illegible]

RIO GRANDE DE ARECIBO BASIN

50028000 RIO TANAMA NEAR UTUADO, PR--Continued

SEDIMENT DISCHARGE, SUSPENDED (TONS/DAY), WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993

| DAY | MEAN DISCHARGE (CFS) | MEAN CONCEN- TRATION (MG/L) | SEDIMENT DISCHARGE (TONS/DAY) | MEAN DISCHARGE (CFS) | MEAN CONCEN- TRATION (MG/L) | SEDIMENT DISCHARGE (TONS/DAY) | MEAN DISCHARGE (CFS) | MEAN CONCEN- TRATION (MG/L) | SEDIMENT DISCHARGE (TONS/DAY) |
|---------|----------------------------|--------------------------------------|-------------------------------------|----------------------------|--------------------------------------|-------------------------------------|----------------------------|--------------------------------------|-------------------------------------|
| OCTOBER | | | NOVEMBER | | | DECEMBER | | | |
| 1 | e157 | 1050 | e1440 | e82 | 178 | e55 | 39 | 14 | 1.4 |
| 2 | e98 | 206 | e59 | e64 | 63 | e11 | 38 | 9 | .90 |
| 3 | e65 | 75 | e14 | 61 | 26 | 4.5 | 43 | 35 | 6.2 |
| 4 | 97 | 284 | 282 | 65 | 31 | 5.3 | 39 | 68 | 7.2 |
| 5 | 77 | 175 | 38 | 57 | 31 | 4.8 | 44 | 73 | 12 |
| 6 | 62 | 83 | 15 | 55 | 24 | 3.5 | 42 | 37 | 4.9 |
| 7 | 51 | 48 | 7.2 | 53 | 15 | 2.1 | 36 | 10 | .99 |
| 8 | 112 | 952 | 1380 | 52 | 10 | 1.3 | 35 | 5 | .53 |
| 9 | e62 | 140 | e28 | 51 | 9 | 1.2 | 34 | 5 | .51 |
| 10 | 345 | 1680 | 9700 | 50 | 8 | 1.1 | 33 | 5 | .49 |
| 11 | e109 | 232 | e78 | 48 | 8 | 1.0 | 33 | 5 | .44 |
| 12 | e78 | 83 | e18 | 47 | 8 | 1.0 | 32 | 5 | .43 |
| 13 | 87 | 135 | 60 | 50 | 26 | 4.5 | 59 | 119 | 58 |
| 14 | 108 | 340 | 263 | 56 | 67 | 13 | 112 | 431 | 357 |
| 15 | 76 | 153 | 34 | 50 | 64 | 9.5 | 64 | 108 | 26 |
| 16 | 87 | 228 | 87 | 64 | 112 | 27 | 38 | 32 | 3.5 |
| 17 | 112 | 314 | 161 | 53 | 98 | 17 | 35 | 16 | 1.4 |
| 18 | e114 | 315 | e215 | 47 | 39 | 5.1 | 33 | 11 | .94 |
| 19 | 78 | 150 | 35 | 46 | 22 | 2.8 | 34 | 10 | .90 |
| 20 | 66 | 63 | 12 | 53 | 52 | 10 | 34 | 10 | .90 |
| 21 | 61 | 17 | 2.8 | 46 | 22 | 2.9 | 33 | 10 | .90 |
| 22 | 84 | 149 | 49 | 46 | 9 | 1.2 | 36 | 9 | .84 |
| 23 | 80 | 162 | 47 | 44 | 9 | 1.1 | 34 | 8 | .72 |
| 24 | 82 | 161 | 46 | 43 | 9 | 1.0 | 32 | 8 | .68 |
| 25 | 77 | 145 | 34 | 41 | 7 | .77 | 31 | 8 | .73 |
| 26 | e68 | 118 | e27 | 40 | 5 | .53 | 51 | 66 | 15 |
| 27 | e59 | 59 | e9.6 | 47 | 45 | 7.2 | 40 | 40 | 4.7 |
| 28 | e54 | 30 | e4.4 | 52 | 70 | 11 | 34 | 15 | 1.4 |
| 29 | 55 | 23 | 3.5 | 44 | 67 | 8.9 | 35 | 7 | .68 |
| 30 | 126 | 469 | 598 | 41 | 21 | 2.3 | 32 | 5 | .45 |
| 31 | 77 | 143 | 32 | --- | --- | --- | 30 | 5 | .40 |
| TOTAL | 2864 | --- | 14779.5 | 1548 | --- | 217.60 | 1245 | --- | 511.13 |

e Estimated

RIO GRANDE DE ARECIBO BASIN

50028000 RIO TANAMA NEAR UTUADO, PR--Continued

SEDIMENT DISCHARGE, SUSPENDED (TONS/DAY), WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993

| DAY | MEAN DISCHARGE (CFS) | MEAN CONCEN- TRATION (MG/L) | SEDIMENT DISCHARGE (TONS/DAY) | MEAN DISCHARGE (CFS) | MEAN CONCEN- TRATION (MG/L) | SEDIMENT DISCHARGE (TONS/DAY) | MEAN DISCHARGE (CFS) | MEAN CONCEN- TRATION (MG/L) | SEDIMENT DISCHARGE (TONS/DAY) |
|---------|----------------------------|--------------------------------------|-------------------------------------|----------------------------|--------------------------------------|-------------------------------------|----------------------------|--------------------------------------|-------------------------------------|
| JANUARY | | | FEBRUARY | | | MARCH | | | |
| 1 | 29 | 4 | .35 | 51 | 82 | 18 | 20 | 14 | .75 |
| 2 | 27 | 4 | .30 | 30 | 17 | 1.4 | 21 | 13 | .70 |
| 3 | 27 | 4 | .30 | 34 | 9 | .74 | 19 | 11 | .57 |
| 4 | 27 | 4 | .29 | 27 | 6 | .49 | 19 | 10 | .52 |
| 5 | 26 | 4 | .28 | 26 | 5 | .35 | 19 | 10 | .52 |
| 6 | 26 | 4 | .27 | 25 | 5 | .34 | 19 | 9 | .47 |
| 7 | 27 | 5 | .43 | 24 | 4 | .29 | 20 | 7 | .40 |
| 8 | 28 | 8 | .64 | 23 | 4 | .24 | 20 | 5 | .30 |
| 9 | 25 | 11 | .75 | 23 | 4 | .24 | 24 | 4 | .25 |
| 10 | 25 | 14 | .95 | 22 | 3 | .19 | 23 | 4 | .29 |
| 11 | 25 | 13 | .86 | 21 | 3 | .16 | 24 | 15 | 1.3 |
| 12 | 25 | 9 | .59 | 22 | 3 | .18 | 21 | 8 | .50 |
| 13 | 25 | 6 | .43 | 21 | 3 | .17 | 19 | 5 | .26 |
| 14 | 24 | 5 | .36 | 21 | 3 | .16 | 19 | 5 | .26 |
| 15 | 25 | 6 | .39 | 20 | 3 | .16 | 23 | 5 | .33 |
| 16 | 23 | 6 | .38 | 23 | 9 | 1.2 | 21 | 5 | .29 |
| 17 | 22 | 6 | .37 | 28 | 21 | 2.0 | 20 | 5 | .27 |
| 18 | 22 | 6 | .36 | 21 | 7 | .41 | 19 | 4 | .23 |
| 19 | 22 | 6 | .36 | 21 | 7 | .41 | 18 | 5 | .24 |
| 20 | 21 | 7 | .42 | 29 | 16 | 1.5 | 18 | 6 | .29 |
| 21 | 21 | 7 | .40 | 27 | 12 | .87 | 17 | 7 | .33 |
| 22 | e22 | 6 | e.34 | 22 | 2 | .15 | 17 | 6 | .27 |
| 23 | e25 | 6 | e.40 | 21 | 2 | .11 | 16 | 5 | .22 |
| 24 | e25 | 6 | e.40 | 20 | 2 | .10 | 17 | 5 | .27 |
| 25 | e24 | 7 | e.45 | 20 | 3 | .15 | 21 | 7 | .42 |
| 26 | e22 | 8 | e.48 | 20 | 6 | .33 | 17 | 10 | .48 |
| 27 | e21 | 8 | e.46 | 19 | 12 | .59 | 37 | 58 | 15 |
| 28 | e21 | 10 | e.55 | 19 | 14 | .72 | 34 | 40 | 5.2 |
| 29 | 46 | 59 | 9.8 | --- | --- | --- | 19 | 11 | .60 |
| 30 | 59 | 114 | 38 | --- | --- | --- | 72 | 195 | 106 |
| 31 | 48 | 74 | 21 | --- | --- | --- | 33 | 108 | 11 |
| TOTAL | 835 | --- | 81.36 | 680 | --- | 31.65 | 706 | --- | 148.53 |

e Estimated

RIO GRANDE DE ARECIBO BASIN

50028000 RIO TANAMA NEAR UTUADO, PR--Continued

SEDIMENT DISCHARGE, SUSPENDED (TONS/DAY), WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993

| DAY | MEAN DISCHARGE (CFS) | MEAN CONCEN- TRATION (MG/L) | SEDIMENT DISCHARGE (TONS/DAY) | MEAN DISCHARGE (CFS) | MEAN CONCEN- TRATION (MG/L) | SEDIMENT DISCHARGE (TONS/DAY) | MEAN DISCHARGE (CFS) | MEAN CONCEN- TRATION (MG/L) | SEDIMENT DISCHARGE (TONS/DAY) |
|-------|----------------------------|--------------------------------------|-------------------------------------|----------------------------|--------------------------------------|-------------------------------------|----------------------------|--------------------------------------|-------------------------------------|
| APRIL | | | MAY | | | JUNE | | | |
| 1 | 21 | 40 | 2.4 | 45 | 59 | 8.5 | 50 | 15 | 2.1 |
| 2 | 19 | 8 | .39 | 77 | 252 | 93 | 45 | 9 | 1.1 |
| 3 | 18 | 5 | .26 | 106 | 349 | 183 | 42 | 8 | .90 |
| 4 | 17 | 4 | .20 | 61 | 92 | 17 | 40 | 7 | .76 |
| 5 | 17 | 3 | .16 | 66 | 111 | 35 | 37 | 6 | .66 |
| 6 | 19 | 9 | .73 | 60 | 103 | 24 | 36 | 5 | .53 |
| 7 | 17 | 9 | .45 | 70 | 140 | 37 | 35 | 4 | .38 |
| 8 | 32 | 51 | 16 | 54 | 45 | 7.7 | 35 | 3 | .33 |
| 9 | 19 | 12 | .69 | 61 | 58 | 11 | 42 | 32 | 6.3 |
| 10 | 19 | 11 | .60 | 53 | 54 | 9.4 | 39 | 45 | 5.6 |
| 11 | 43 | 69 | 20 | 46 | 19 | 2.3 | 35 | 7 | .68 |
| 12 | 44 | 78 | 11 | 42 | 13 | 1.5 | 38 | 19 | 2.6 |
| 13 | 66 | 191 | 123 | 40 | 11 | 1.1 | 33 | 9 | .91 |
| 14 | 241 | 1030 | 4750 | 38 | 9 | .92 | 30 | 5 | .40 |
| 15 | e54 | 82 | e15 | 38 | 8 | .80 | 29 | 5 | .40 |
| 16 | 37 | 29 | 2.8 | 58 | 81 | 25 | 30 | 5 | .38 |
| 17 | 59 | 121 | 34 | 41 | 36 | 4.6 | 26 | 5 | .34 |
| 18 | 41 | 100 | 13 | 37 | 13 | 1.2 | 25 | 5 | .36 |
| 19 | e35 | 30 | e3.0 | 36 | 7 | .68 | 51 | 68 | 12 |
| 20 | e33 | 15 | e1.3 | 38 | 5 | .51 | 40 | 24 | 3.0 |
| 21 | e94 | 422 | e293 | 32 | 5 | .43 | 28 | 10 | .76 |
| 22 | 47 | 61 | 9.5 | 31 | 5 | .43 | 26 | 6 | .46 |
| 23 | 38 | 45 | 7.8 | 108 | 454 | 296 | 25 | 4 | .30 |
| 24 | 37 | 37 | 5.7 | 51 | 90 | 15 | 24 | 5 | .32 |
| 25 | 32 | 24 | 2.3 | 83 | 234 | 132 | 24 | 7 | .47 |
| 26 | 26 | 16 | 1.2 | 91 | 275 | 139 | 23 | 9 | .55 |
| 27 | 36 | 39 | 6.9 | 65 | 271 | 50 | 23 | 8 | .50 |
| 28 | 33 | 34 | 3.9 | 119 | 583 | 682 | 22 | 7 | .44 |
| 29 | 96 | 320 | 249 | 68 | 135 | 27 | 50 | 77 | 27 |
| 30 | 72 | 145 | 37 | 91 | 306 | 205 | 35 | 41 | 5.6 |
| 31 | --- | --- | --- | 66 | 46 | 9.2 | --- | --- | --- |
| TOTAL | 1362 | --- | 5611.28 | 1872 | --- | 2020.27 | 1018 | --- | 76.13 |

e Estimated

RIO GRANDE DE ARECIBO BASIN

50028000 RIO TANAMA NEAR UTUADO, PR--Continued

SEDIMENT DISCHARGE, SUSPENDED (TONS/DAY), WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993

| DAY | MEAN DISCHARGE (CFS) | MEAN CONCEN- TRATION (MG/L) | SEDIMENT DISCHARGE (TONS/DAY) | MEAN DISCHARGE (CFS) | MEAN CONCEN- TRATION (MG/L) | SEDIMENT DISCHARGE (TONS/DAY) | MEAN DISCHARGE (CFS) | MEAN CONCEN- TRATION (MG/L) | SEDIMENT DISCHARGE (TONS/DAY) |
|-------|----------------------------|--------------------------------------|-------------------------------------|----------------------------|--------------------------------------|-------------------------------------|----------------------------|--------------------------------------|-------------------------------------|
| JULY | | | AUGUST | | | SEPTEMBER | | | |
| 1 | 24 | 12 | .76 | 17 | 5 | .24 | 88 | 443 | 431 |
| 2 | 24 | 9 | .57 | 17 | 7 | .31 | 63 | 104 | 23 |
| 3 | 23 | 10 | .60 | 17 | 9 | .40 | 44 | 57 | 7.2 |
| 4 | 24 | 11 | .66 | 17 | 10 | .46 | 34 | 32 | 3.3 |
| 5 | 25 | 11 | .68 | 17 | 10 | .47 | 57 | 114 | 42 |
| 6 | 24 | 10 | .60 | 26 | 18 | 1.5 | 342 | 1420 | 7320 |
| 7 | 26 | 15 | 1.3 | 21 | 10 | .59 | 221 | 971 | 2740 |
| 8 | 25 | 11 | .85 | 17 | 8 | .36 | e106 | 261 | e92 |
| 9 | 22 | 4 | .26 | 33 | 55 | 18 | e71 | 79 | e18 |
| 10 | 21 | 3 | .20 | 28 | 27 | 3.2 | 87 | 176 | 80 |
| 11 | 23 | 3 | .19 | 22 | 16 | 1.2 | 68 | 95 | 20 |
| 12 | 22 | 2 | .16 | 20 | 16 | .97 | 52 | 24 | 3.4 |
| 13 | 20 | 2 | .10 | 17 | 12 | .56 | 52 | 43 | 7.3 |
| 14 | 23 | 2 | .11 | 16 | 11 | .50 | 44 | 36 | 4.5 |
| 15 | 20 | 2 | .12 | 17 | 9 | .40 | 40 | 13 | 1.3 |
| 16 | 21 | 2 | .11 | 62 | 104 | 25 | 38 | 9 | .91 |
| 17 | 18 | 2 | .10 | 29 | 29 | 2.7 | 37 | 6 | .63 |
| 18 | 18 | 2 | .10 | 22 | 11 | .68 | e38 | 7 | e.77 |
| 19 | 18 | 2 | .13 | 21 | 8 | .47 | e36 | 10 | e.98 |
| 20 | 19 | 3 | .18 | 19 | 6 | .33 | e44 | 10 | e1.2 |
| 21 | 20 | 4 | .20 | 19 | 5 | .25 | e36 | 10 | e.98 |
| 22 | 26 | 12 | 1.1 | 19 | 3 | .15 | e50 | 58 | e14 |
| 23 | 23 | 10 | .69 | 19 | 2 | .10 | 56 | 133 | 24 |
| 24 | 23 | 4 | .28 | 17 | 2 | .10 | 43 | 60 | 7.6 |
| 25 | 20 | 5 | .28 | 19 | 8 | .63 | 37 | 50 | 5.0 |
| 26 | 20 | 5 | .25 | 19 | 12 | .67 | 38 | 41 | 4.1 |
| 27 | 18 | 5 | .26 | 16 | 6 | .29 | 35 | 32 | 3.2 |
| 28 | 17 | 6 | .28 | 72 | 636 | 607 | 37 | 24 | 2.4 |
| 29 | 16 | 7 | .30 | 104 | 432 | 564 | 34 | 17 | 1.7 |
| 30 | 17 | 6 | .29 | 56 | 89 | 19 | 31 | 14 | 1.1 |
| 31 | 16 | 5 | .25 | 46 | 63 | 12 | --- | --- | --- |
| TOTAL | 656 | --- | 11.96 | 861 | --- | 1262.53 | 1959 | --- | 10861.57 |
| YEAR | 15606 | | 35613.51 | | | | | | |

e Estimated

RIO GRANDE DE ARECIBO BASIN

50028000 RIO TANAMA NEAR UTUADO, PR--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993

PARTICLE-SIZE DISTRIBUTION OF SUSPENDED SEDIMENT

| DATE | TIME | DIS- CHARGE, INST. CUBIC FEET PER SECOND | SEDI- MENT, DIS- CHARGE, SUS- PENDED (MG/L) | SEDI- MENT, DIS- CHARGE, SUS- PENDED (T/DAY) | SED. SUSP. FALL DIAM. PERCENT FINER THAN .002 MM | SED. SUSP. FALL DIAM. PERCENT FINER THAN .004 MM | SED. SUSP. FALL DIAM. PERCENT FINER THAN .008 MM |
|----------|------|--|---|--|---|---|---|
| OCT 1992 | | | | | | | |
| 01... | 1727 | 865 | 5310 | 12400 | 46 | -- | 61 |
| 10... | 1703 | 5030 | 22800 | 310000 | 19 | 16 | 28 |
| APR 1993 | | | | | | | |
| 14... | 1730 | 4770 | 13400 | 172000 | 27 | 32 | 36 |
| AUG | | | | | | | |
| 28... | 1758 | 397 | 8290 | 8890 | 19 | 27 | 36 |
| SEP | | | | | | | |
| 06... | 1720 | 1780 | 12800 | 61700 | 19 | 25 | 33 |

| DATE | SED. SUSP. FALL DIAM. PERCENT FINER THAN .016 MM | SED. SUSP. FALL DIAM. PERCENT FINER THAN .031 MM | SED. SUSP. SIEVE DIAM. PERCENT FINER THAN .062 MM | SED. SUSP. SIEVE DIAM. PERCENT FINER THAN .125 MM | SED. SUSP. SIEVE DIAM. PERCENT FINER THAN .250 MM | SED. SUSP. SIEVE DIAM. PERCENT FINER THAN .500 MM | SED. SUSP. SIEVE DIAM. PERCENT FINER THAN 1.00 MM |
|----------|---|---|--|--|--|--|--|
| OCT 1992 | | | | | | | |
| 01... | 77 | -- | 79 | 89 | 94 | 98 | 99.4 |
| 10... | 36 | 45 | 57 | 69 | 82 | 94 | 99.8 |
| APR 1993 | | | | | | | |
| 14... | 46 | 56 | 71 | 83 | 92 | 97 | 99.4 |
| AUG | | | | | | | |
| 28... | 61 | 79 | 90 | 96 | 98 | 99 | 100 |
| SEP | | | | | | | |
| 06... | 42 | 52 | 62 | 76 | 88 | 96 | 99.8 |

RIO GRANDE DE ARECIBO BASIN
 50028000 RIO TANAMA NEAR UTUADO--Continued
 WATER QUALITY DATA, WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993
 SILT AND CLAY PERCENT OF SUSPENDED SEDIMENT

| DATE | TIME | STREAM- FLOW, INSTAN- TANEOUS (CFS) | SEDI- MENT, SUS- PENDEED (MG/L) | SEDI- MENT, DIS- CHARGE, SUS- PENDEED (T/DAY) | SED. SUSP. SIEVE DIAM. PERCENT FINER THAN .062 MM |
|----------|------|---|---|---|--|
| OCT 1992 | | | | | |
| 01... | 1627 | 237 | 1640 | 1050 | 88 |
| 01... | 2107 | 170 | 3310 | 1520 | 93 |
| 08... | 1915 | 241 | 4680 | 3040 | 91 |
| 10... | 1803 | 1650 | 9570 | 42600 | 69 |
| 14... | 1910 | 420 | 2180 | 2470 | 66 |
| 18... | 1717 | 615 | 1810 | 3000 | 85 |
| FEB 1993 | | | | | |
| 01... | 1356 | 38 | 101 | 10 | 96 |
| APR | | | | | |
| 14... | 2055 | 231 | 7130 | 4450 | 91 |
| 21... | 1553 | 290 | 1140 | 893 | 80 |
| MAY | | | | | |
| 02... | 1857 | 251 | 821 | 556 | 85 |
| 02... | 2113 | 130 | 1560 | 548 | 89 |
| 03... | 1550 | 212 | 1030 | 590 | 92 |
| 03... | 1745 | 230 | 1620 | 1010 | 89 |
| 06... | 1107 | 45 | 128 | 16 | 98 |
| 23... | 1730 | 413 | 1630 | 1820 | 82 |
| AUG | | | | | |
| 10... | 0806 | 27 | 381 | 28 | 99 |
| SEP | | | | | |
| 01... | 1650 | 197 | 4600 | 2450 | 76 |
| 06... | 1805 | 2820 | 11600 | 88300 | 58 |

RIO GRANDE DE ARECIBO BASIN

50028400 RIO TANAMA AT CHARCO HONDO, PR

LOCATION.--Lat 18°24'52", long 66°42'52", Hydrologic Unit 21010002 on right bank at abandoned power house at Charco Hondo, 1.5 mi (2.4 km) upstream from mouth, and 4 mi (6 km) south of Arecibo.

DRAINAGE AREA.--57.6 mi² (149.2 km²).

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--April 1969 to June 1971, October 1981 to current year.

GAGE.--Water-stage recorder and crest-stage gage. Elevation of gage is 60 ft (18 m), from topographic map.

REMARKS.--Records poor. Diversion 0.8 mi (1.3 km) upstream for municipal supply of Arecibo.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993
DAILY MEAN VALUES

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|-------|-------|------|------|------|------|------|------|------|------|------|------|------|
| 1 | 236 | e162 | e120 | e83 | e180 | 40 | 53 | 106 | 107 | 50 | 35 | 130 |
| 2 | 158 | e150 | e110 | e78 | e110 | 42 | 45 | 111 | 98 | 48 | 36 | 103 |
| 3 | 96 | e140 | e131 | e78 | e130 | 41 | 48 | 230 | 103 | 49 | 36 | 78 |
| 4 | 103 | e180 | e120 | e78 | e100 | 39 | 41 | 223 | 88 | 45 | 36 | 62 |
| 5 | 139 | e153 | e139 | e76 | e72 | 39 | 41 | 126 | 76 | 44 | 36 | 123 |
| 6 | 82 | e140 | e130 | e76 | e58 | 40 | 41 | 159 | e74 | 43 | 43 | 540 |
| 7 | 81 | e139 | e120 | e80 | e52 | 40 | 45 | 273 | e72 | 43 | 43 | 447 |
| 8 | 156 | e139 | e110 | e82 | e48 | 40 | 77 | 256 | e72 | 49 | 37 | 296 |
| 9 | 119 | e130 | e100 | e72 | e45 | 44 | 81 | 149 | e74 | 42 | 35 | e122 |
| 10 | 388 | e130 | e98 | e72 | e44 | 42 | 47 | 130 | 84 | 40 | 67 | e150 |
| 11 | 196 | e129 | e99 | e72 | 42 | 49 | 44 | 105 | 66 | 41 | 38 | e120 |
| 12 | 149 | e129 | e93 | e72 | 41 | 56 | 101 | 99 | 69 | 47 | 42 | e93 |
| 13 | e150 | e140 | e160 | e72 | 41 | 42 | 97 | 93 | 99 | 40 | 36 | e93 |
| 14 | e171 | e170 | e320 | e68 | 40 | 41 | 290 | 80 | 99 | 42 | 35 | e79 |
| 15 | e160 | e140 | e200 | e72 | 40 | 43 | e135 | 76 | 65 | 42 | 36 | e70 |
| 16 | e160 | e230 | e110 | e68 | 39 | 42 | e82 | 118 | 61 | 42 | 82 | e68 |
| 17 | e240 | e180 | e100 | e66 | 50 | 46 | e130 | 144 | 56 | 38 | 69 | e66 |
| 18 | e250 | e169 | e95 | e66 | 42 | 42 | e90 | 82 | 68 | 37 | 46 | 111 |
| 19 | e160 | e160 | e98 | e66 | 40 | 40 | e80 | 69 | 101 | 35 | 43 | 165 |
| 20 | e149 | e220 | e100 | e62 | 46 | 40 | e77 | 78 | 95 | 35 | 39 | 129 |
| 21 | e140 | e180 | e94 | e62 | 55 | 40 | e241 | 71 | 63 | 36 | 37 | 81 |
| 22 | e165 | e170 | e108 | e66 | 44 | 41 | e244 | 68 | 57 | 44 | 37 | 80 |
| 23 | e175 | e160 | e100 | e74 | 40 | 45 | e84 | 179 | 54 | 64 | 39 | 103 |
| 24 | e180 | e153 | e94 | e74 | 40 | 46 | e78 | 168 | 52 | 40 | 38 | 96 |
| 25 | e165 | e150 | e90 | e71 | 40 | 54 | e68 | 123 | 50 | 39 | 35 | 77 |
| 26 | e145 | e140 | e140 | e68 | 43 | 49 | e60 | 162 | 49 | 40 | 39 | 87 |
| 27 | e130 | e150 | e110 | e64 | 42 | 48 | 79 | 137 | 48 | 48 | 36 | 70 |
| 28 | e120 | e172 | e90 | e64 | 41 | 88 | 123 | 222 | 47 | 37 | 86 | 77 |
| 29 | e150 | e140 | e97 | e200 | --- | 47 | 176 | 257 | 55 | 35 | 153 | 94 |
| 30 | e251 | e130 | e90 | e269 | --- | 104 | 199 | 153 | 89 | 34 | 127 | 71 |
| 31 | e190 | --- | e86 | e160 | --- | 104 | --- | 148 | --- | 34 | 73 | --- |
| TOTAL | 5154 | 4675 | 3652 | 2631 | 1605 | 1514 | 2997 | 4395 | 2191 | 1303 | 1570 | 3881 |
| MEAN | 166 | 156 | 118 | 84.9 | 57.3 | 48.8 | 99.9 | 142 | 73.0 | 42.0 | 50.6 | 129 |
| MAX | 388 | 230 | 320 | 269 | 180 | 104 | 290 | 273 | 107 | 64 | 153 | 540 |
| MIN | 81 | 129 | 86 | 62 | 39 | 39 | 41 | 68 | 47 | 34 | 35 | 62 |
| AC-FT | 10220 | 9270 | 7240 | 5220 | 3180 | 3000 | 5940 | 8720 | 4350 | 2580 | 3110 | 7700 |
| CFSM | 2.89 | 2.71 | 2.05 | 1.47 | 1.00 | .85 | 1.73 | 2.46 | 1.27 | .73 | .88 | 2.25 |
| IN. | 3.33 | 3.02 | 2.36 | 1.70 | 1.04 | .98 | 1.94 | 2.84 | 1.42 | .84 | 1.01 | 2.51 |

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1969 - 1993, BY WATER YEAR (WY)

| | MEAN | 170 | 145 | 82.0 | 55.3 | 45.8 | 39.9 | 73.0 | 139 | 88.0 | 68.0 | 74.8 | 115 |
|------|------|------|------|------|------|------|------|------|------|------|------|------|-----|
| MAX | 335 | 260 | 219 | 90.8 | 85.1 | 70.0 | 141 | 371 | 179 | 120 | 125 | 216 | |
| (WY) | 1990 | 1982 | 1982 | 1982 | 1971 | 1971 | 1986 | 1986 | 1970 | 1969 | 1991 | 1984 | |
| MIN | 72.1 | 71.5 | 36.4 | 22.3 | 16.7 | 16.6 | 25.9 | 15.8 | 23.3 | 22.0 | 37.4 | 59.7 | |
| (WY) | 1983 | 1988 | 1989 | 1989 | 1989 | 1988 | 1989 | 1989 | 1989 | 1989 | 1987 | 1986 | |

SUMMARY STATISTICS

FOR 1992 CALENDAR YEAR

FOR 1993 WATER YEAR

WATER YEARS 1969 - 1993

| | | | |
|--------------------------|-------|--------|--------|
| ANNUAL TOTAL | 36827 | 35568 | |
| ANNUAL MEAN | 101 | 97.4 | 88.8 |
| HIGHEST ANNUAL MEAN | | | 124 |
| LOWEST ANNUAL MEAN | | | 51.3 |
| HIGHEST DAILY MEAN | 483 | May 23 | 2500 |
| LOWEST DAILY MEAN | 29 | Mar 14 | 4.2 |
| ANNUAL SEVEN-DAY MINIMUM | 31 | Mar 13 | 5.4 |
| INSTANTANEOUS PEAK FLOW | | 8010 | Sep 6 |
| INSTANTANEOUS PEAK STAGE | | 15.48 | Sep 6 |
| INSTANTANEOUS LOW FLOW | | 27 | Aug 24 |
| ANNUAL RUNOFF (AC-FT) | 73050 | 70550 | 64340 |
| ANNUAL RUNOFF (CFSM) | 1.75 | 1.69 | 1.54 |
| ANNUAL RUNOFF (INCHES) | 23.78 | 22.97 | 20.95 |
| 10 PERCENT EXCEEDS | 180 | 170 | 180 |
| 50 PERCENT EXCEEDS | 77 | 78 | 66 |
| 90 PERCENT EXCEEDS | 37 | 40 | 28 |

e Estimated

RIO GRANDE DE ARECIBO BASIN

50029000 RIO GRANDE DE ARECIBO AT CENTRAL CAMBALACHE, PR

WATER-QUALITY RECORDS

LOCATION.--Lat 18°27'20", long 66°42'10", Hydrologic Unit 21010002, at bridge on unimproved road, about 500 ft (152 m) upstream from Central Cambalache, near Highway 2, 8.3 mi (13.4 km) downstream from Dos Bocas Reservoir, 1.9 mi (3.1 km) downstream from Rio Tanamá, and 1.6 mi (2.6 km) southeast of Arecibo.

DRAINAGE AREA.--200 mi² (520 km²), approximately.

PERIOD OF RECORD.--Water years 1963-66, 1969 to current year.

WATER-QUALITY DATA, WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993

| DATE | TIME | DIS-CHARGE, INST. CUBIC FEET PER SECOND | SPE-CIFIC CON-DUCT-ANCE (US/CM) | PH WATER WHOLE FIELD (STAND-ARD UNITS) | TEMPER-ATURE WATER (DEG C) | TUR-BID-ITY (NTU) | OXYGEN, DIS-SOLVED (MG/L) | OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION) | OXYGEN DEMAND, CHEM-ICAL (HIGH LEVEL) (MG/L) | COLI-FORM, FECAL, 0.45 UM-MF (COLS./100 ML) | STREP-TOCOCCI, FECAL, (COLS. PER 100 ML) |
|----------|------|---|---------------------------------|--|----------------------------|-------------------|---------------------------|---|--|---|--|
| OCT 1992 | | | | | | | | | | | |
| 23... | 0745 | E500 | 203 | 7.1 | 25.5 | 31 | 6.0 | 72 | <10 | K820 | 3900 |
| JAN 1993 | | | | | | | | | | | |
| 04... | 1025 | 145 | 301 | 7.1 | 24.0 | 2.7 | 0.6 | 7 | 34 | 280 | K110 |
| FEB | | | | | | | | | | | |
| 12... | 0900 | 109 | 286 | 7.7 | 24.0 | 3.5 | 5.4 | 63 | <10 | 490 | 360 |
| APR | | | | | | | | | | | |
| 23... | 0910 | 200 | 224 | 7.1 | 24.0 | 140 | 6.6 | 77 | 86 | 2200 | 2500 |
| JUN | | | | | | | | | | | |
| 14... | 0945 | 191 | 275 | 7.3 | 25.0 | 16 | 7.0 | 83 | <10 | 4100 | 2500 |
| SEP | | | | | | | | | | | |
| 15... | 1000 | E500 | 225 | 7.0 | 25.8 | 8.2 | 7.0 | 81 | 31 | K 760 | 340 |

| DATE | HARD-NESS TOTAL (MG/L AS CaCO3) | HARD-NESS NONCARB WH WAT TOT FLD MG/L AS CaCO3 | CALCIUM DIS-SOLVED (MG/L AS Ca) | MAGNE-SIUM, DIS-SOLVED (MG/L AS Mg) | SODIUM, DIS-SOLVED (MG/L AS Na) | SODIUM AD-SORP-TION RATIO | POTAS-SIUM, DIS-SOLVED (MG/L AS K) | ALKA-LINITY WAT WH TOT FET FIELD MG/L AS CaCO3 | SULFIDE TOTAL (MG/L AS S) | SULFATE DIS-SOLVED (MG/L AS SO4) | CHLO-RIDE, DIS-SOLVED (MG/L AS Cl) |
|----------|---------------------------------|--|---------------------------------|-------------------------------------|---------------------------------|---------------------------|------------------------------------|--|---------------------------|----------------------------------|------------------------------------|
| OCT 1992 | | | | | | | | | | | |
| 23... | 86 | 2 | 26 | 5.1 | 7.5 | 0.4 | 2.1 | 110 | <0.5 | 9.2 | 8.2 |
| JAN 1993 | | | | | | | | | | | |
| 04... | -- | -- | -- | -- | -- | -- | -- | 130 | -- | -- | -- |
| FEB | | | | | | | | | | | |
| 12... | -- | -- | -- | -- | -- | -- | -- | 120 | -- | -- | -- |
| APR | | | | | | | | | | | |
| 23... | 98 | 11 | 32 | 4.3 | 6.8 | 0.3 | 2.4 | 93 | <0.5 | 9.7 | 8.5 |
| JUN | | | | | | | | | | | |
| 14... | -- | -- | -- | -- | -- | -- | -- | 110 | -- | -- | -- |
| SEP | | | | | | | | | | | |
| 15... | 98 | 7 | 30 | 5.5 | 8.6 | 0.4 | 2.3 | 82 | -- | 11 | 10 |

| DATE | FLUO-RIDE, DIS-SOLVED (MG/L AS F) | SILICA, DIS-SOLVED (MG/L AS SiO2) | SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L) | SOLIDS, DIS-SOLVED (TONS PER DAY) | RESIDUE TOTAL AT 105 DEG. C, SUS-PENDED (MG/L) | NITRO-GEN, NITRATE TOTAL (MG/L AS N) | NITRO-GEN, NITRITE TOTAL (MG/L AS N) | NITRO-GEN, NO2+NO3 TOTAL (MG/L AS N) | NITRO-GEN, AMMONIA TOTAL (MG/L AS N) | NITRO-GEN, ORGANIC TOTAL (MG/L AS N) |
|----------|-----------------------------------|-----------------------------------|---|-----------------------------------|--|--------------------------------------|--------------------------------------|--------------------------------------|--------------------------------------|--------------------------------------|
| OCT 1992 | | | | | | | | | | |
| 23... | <0.10 | 19 | 144 | -- | 5 | 0.700 | 0.010 | 0.710 | 0.030 | 0.17 |
| JAN 1993 | | | | | | | | | | |
| 04... | -- | -- | -- | -- | 41 | 0.690 | 0.010 | 0.700 | 0.020 | 0.58 |
| FEB | | | | | | | | | | |
| 12... | -- | -- | -- | -- | 9 | 0.490 | 0.010 | 0.500 | 0.010 | 0.29 |
| APR | | | | | | | | | | |
| 23... | 0.10 | 13 | 133 | 71.6 | 57 | 0.430 | 0.080 | 0.500 | 0.080 | 0.52 |
| JUN | | | | | | | | | | |
| 14... | -- | -- | -- | -- | 22 | 0.390 | 0.010 | 0.400 | 0.010 | 0.59 |
| SEP | | | | | | | | | | |
| 15... | <0.10 | 18 | 141 | -- | 15 | 0.690 | 0.010 | 0.700 | 0.020 | 1.6 |

E = estimate

K = non-ideal count

RIO GRANDE DE ARECIBO BASIN

50029000 RIO GRANDE DE ARECIBO AT CENTRAL CAMBALACHE, PR--Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993

| DATE | NITRO- GEN, AM- MONIA + ORGANIC TOTAL (MG/L AS N) | NITRO- GEN, TOTAL (MG/L AS N) | NITRO- GEN, TOTAL (MG/L AS NO3) | PHOS- PHORUS TOTAL (MG/L AS P) | ARSENIC TOTAL (UG/L AS AS) | BARIUM, TOTAL RECOV- ERABLE (UG/L AS BA) | BORON, TOTAL RECOV- ERABLE (UG/L AS B) | CADMIUM TOTAL RECOV- ERABLE (UG/L AS CD) | CHRO- MIUM, TOTAL RECOV- ERABLE (UG/L AS CR) | COPPER, TOTAL RECOV- ERABLE (UG/L AS CU) |
|-------------------|---|---|---|--|-------------------------------------|---|---|---|--|---|
| OCT 1992 23... | | | | | | | | | | |
| JAN 1993 04... | 0.20 | 0.91 | 4.0 | 0.060 | <1 | <100 | <10 | <1 | <1 | <10 |
| FEB 12... | 0.60 | 1.3 | 5.8 | 0.030 | -- | -- | -- | -- | -- | -- |
| APR 23... | 0.30 | 0.80 | 3.5 | 0.030 | -- | -- | -- | -- | -- | -- |
| JUN 14... | 0.60 | 1.0 | 6.8 | 0.120 | <1 | <100 | 20 | <1 | 3 | <10 |
| SEP 15... | 0.60 | 1.1 | 4.7 | 0.030 | -- | -- | -- | -- | -- | -- |
| | 1.6 | 2.3 | 10 | 0.030 | -- | -- | -- | -- | -- | -- |

| DATE | IRON, TOTAL RECOV- ERABLE (UG/L AS FE) | LEAD, TOTAL RECOV- ERABLE (UG/L AS PB) | MANGA- NESE, TOTAL RECOV- ERABLE (UG/L AS MN) | MERCURY TOTAL RECOV- ERABLE (UG/L AS HG) | SELE- NIUM, TOTAL (UG/L AS SE) | SILVER, TOTAL RECOV- ERABLE (UG/L AS AG) | ZINC, TOTAL RECOV- ERABLE (UG/L AS ZN) | CYANIDE TOTAL (MG/L AS CN) | PHENOLS TOTAL (UG/L) | METHY- LENE BLUE ACTIVE SUB- STANCE (MG/L) |
|-------------------|---|---|---|---|--|---|---|-------------------------------------|----------------------------|--|
| OCT 1992 23... | | | | | | | | | | |
| JAN 1993 04... | 490 | 5 | 60 | <0.10 | <1 | <1 | 30 | <0.01 | 6 | <0.01 |
| FEB 12... | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| APR 23... | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| JUN 14... | 1400 | <1 | 80 | <0.10 | <1 | <1 | 20 | <0.01 | 2 | <0.01 |
| SEP 15... | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |

PESTICIDE ANALYSES

| DATE | TIME | PCB, TOTAL (UG/L) | ALDRIN, TOTAL (UG/L) | CHLOR- DANE, TOTAL (UG/L) | DDD, TOTAL (UG/L) | DDE, TOTAL (UG/L) | DDT, TOTAL (UG/L) | DI- AZINON, TOTAL (UG/L) | DI- ELDRIN TOTAL (UG/L) | ENDO- SULFAN, TOTAL (UG/L) |
|-------------------|------|-------------------------|----------------------------|------------------------------------|-------------------------|-------------------------|-------------------------|-----------------------------------|----------------------------------|-------------------------------------|
| JUN 1993 26... | 0945 | <0.1 | <0.010 | <0.1 | <0.010 | <0.010 | <0.010 | <0.01 | <0.010 | <0.010 |

| DATE | ENDRIN WATER UNFLTRD REC (UG/L) | ETHION, TOTAL (UG/L) | HEPTA- CHLOR, TOTAL (UG/L) | HEPTA- CHLOR EPOXIDE TOTAL (UG/L) | LINDANE TOTAL (UG/L) | MALA- THION, TOTAL (UG/L) | METH- OXY- CHLOR, TOTAL (UG/L) | METHYL PARA- THION, TOTAL (UG/L) | MIREX, TOTAL (UG/L) |
|-------------------|---|----------------------------|-------------------------------------|---|----------------------------|------------------------------------|--|--|---------------------------|
| JUN 1993 26... | <0.010 | <0.01 | <0.010 | <0.010 | <0.010 | <0.01 | <0.01 | <0.01 | <0.01 |

| DATE | PARA- THION, TOTAL (UG/L) | NAPH- THA- LENES, POLY- CHLOR. TOTAL (UG/L) | PER- THANE TOTAL (UG/L) | TOX- APHENE, TOTAL (UG/L) | TOTAL TRI- THION (UG/L) | 2,4-D, TOTAL (UG/L) | 2,4,5-T TOTAL (UG/L) | 2, 4-DP TOTAL (UG/L) | SILVEX, TOTAL (UG/L) |
|-------------------|------------------------------------|---|----------------------------------|------------------------------------|----------------------------------|---------------------------|----------------------------|----------------------------|----------------------------|
| JUN 1993 26... | <0.01 | <0.10 | <0.1 | <1 | <0.01 | <0.01 | <0.01 | <0.01 | <0.01 |

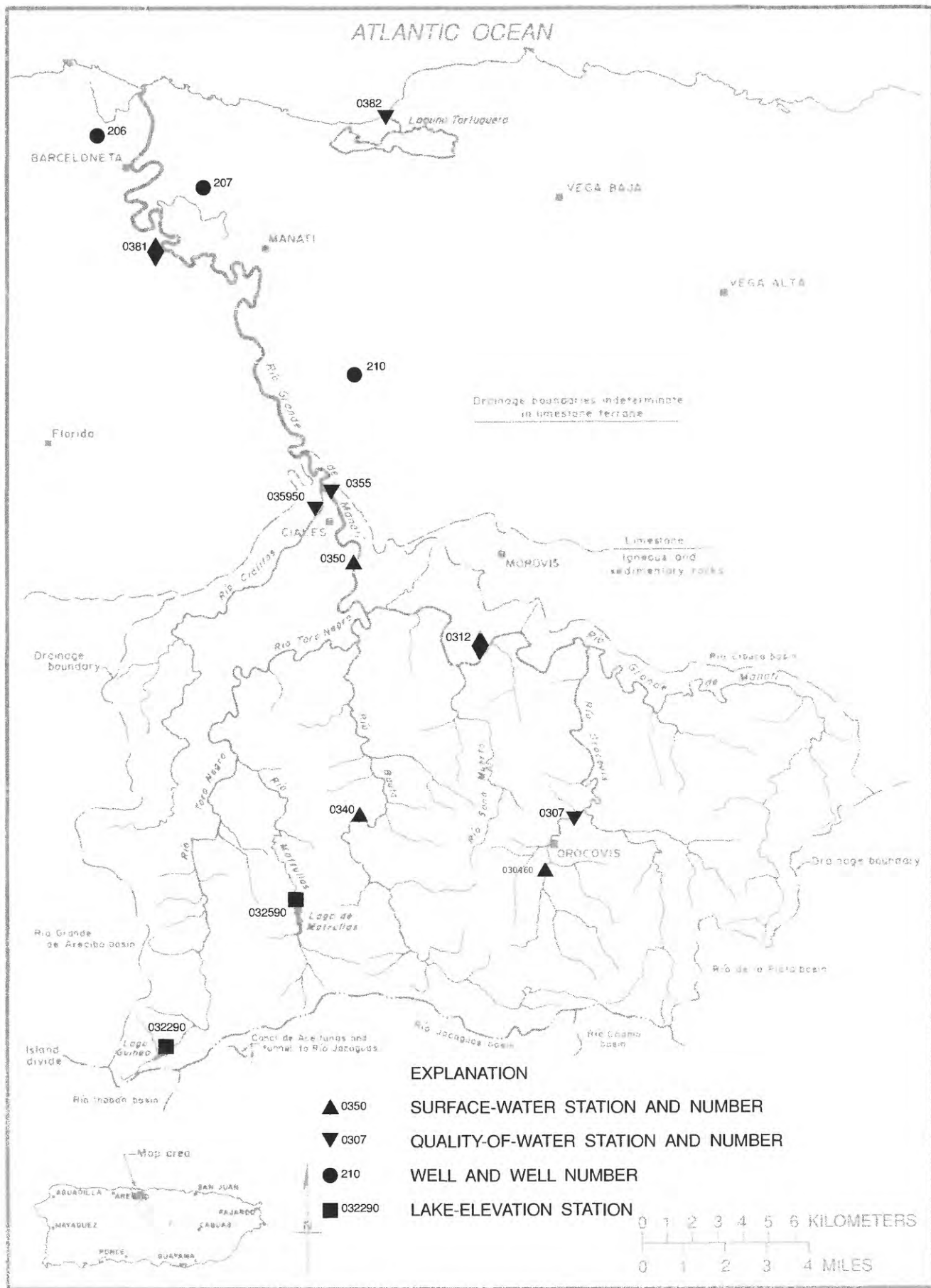


Figure 16.--Río Grande de Manatí basin.

RIO GRANDE DE MANATI BASIN

50030460 RIO OROCOVIS AT OROCOVIS, PR

LOCATION.--Lat 18°13'25", long 66°23'34", Hydrologic Unit 21010001, on right bank, 0.4 mi (0.6 km) south of junction of Highways 155 and 156 in Orocovis, 600 ft (183 m) upstream from Río Batijas, and 250 ft (76 m) upstream from bridge on Highway 599.

DRAINAGE AREA.--5.03 mi² (13.03 km²).

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--April 1981 to September 1982, October 1988 to current year.

GAGE.--Water-stage recorder. Elevation of gage is 500 ft (152 m), from topographic map.

REMARKS.--Records poor. Low flow affected by diversions for water supply. Gage-height and precipitation satellite telemetry at station.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993
DAILY MEAN VALUES

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|-------|--------|--------|--------|-------|-------|-------|--------|-------|-------|-------|------|--------|
| 1 | e.70 | 1.1 | 8.6 | 2.3 | 3.4 | 1.1 | 1.3 | 37 | 7.1 | 4.0 | 1.5 | 1.1 |
| 2 | e.30 | .75 | 5.3 | 1.8 | 1.3 | 1.4 | 1.1 | 121 | 5.7 | 3.6 | 1.8 | 1.3 |
| 3 | e.30 | 11 | 3.3 | 1.9 | 2.5 | 1.1 | .91 | 57 | 5.6 | 3.6 | 1.5 | 1.4 |
| 4 | e.20 | 8.1 | 2.0 | 1.7 | 1.3 | 1.3 | 1.1 | 21 | 5.0 | 4.8 | 1.3 | 24 |
| 5 | e9.0 | 4.7 | 1.4 | 1.5 | e1.1 | 1.4 | 1.5 | 13 | 4.7 | 3.8 | 1.6 | 25 |
| 6 | 54 | 1.7 | 1.2 | 1.5 | e1.0 | 1.4 | 1.8 | 10 | 4.2 | 3.6 | 1.2 | 26 |
| 7 | 6.9 | 1.2 | 1.0 | 4.8 | e.74 | 1.5 | 1.7 | 9.2 | 3.9 | 3.2 | 1.2 | 16 |
| 8 | 1.5 | .85 | 1.1 | 2.6 | e.70 | .93 | 6.3 | 8.4 | 6.4 | 3.3 | 1.5 | 4.1 |
| 9 | .72 | .71 | .92 | 1.7 | e.80 | 1.1 | 2.4 | 9.7 | 4.9 | 2.5 | 1.9 | 2.5 |
| 10 | .40 | .57 | .76 | 1.4 | e.60 | 1.1 | 2.5 | 8.6 | 4.6 | 2.7 | 1.8 | 2.5 |
| 11 | .26 | .44 | .74 | 1.3 | e.64 | 1.1 | 6.5 | 7.9 | 3.5 | 16 | 2.5 | 2.0 |
| 12 | .23 | .47 | .94 | 1.5 | e.74 | .89 | 7.2 | 7.3 | 3.6 | 9.8 | 1.6 | 2.8 |
| 13 | .21 | .38 | .97 | 1.4 | e.70 | .85 | 61 | 6.6 | 3.2 | 7.6 | 1.4 | 1.6 |
| 14 | .42 | .35 | 12 | 1.4 | e1.0 | .98 | 23 | 13 | 3.9 | 9.7 | 1.0 | 2.1 |
| 15 | .63 | .33 | 9.2 | .95 | e.98 | .92 | 31 | 8.2 | 4.2 | 4.4 | 1.6 | 1.6 |
| 16 | .29 | .52 | 3.5 | .88 | e1.7 | 1.4 | 18 | 6.6 | 3.9 | 3.6 | 24 | 1.3 |
| 17 | .28 | .47 | 3.2 | .73 | 2.7 | 1.4 | 13 | 5.1 | 2.3 | 3.3 | 5.4 | 9.0 |
| 18 | 5.3 | .35 | 2.3 | .83 | 1.9 | 1.7 | 5.1 | 5.0 | 2.3 | 3.8 | 2.5 | 1.8 |
| 19 | 2.7 | .34 | 1.9 | .75 | 1.2 | 1.3 | e2.0 | 3.9 | 24 | 4.3 | 2.2 | .93 |
| 20 | .70 | 3.6 | 2.0 | .88 | 7.8 | 1.4 | e2.0 | 4.6 | 21 | 3.7 | 1.7 | 1.0 |
| 21 | .27 | 1.4 | 1.7 | .67 | 5.4 | 1.4 | e1.7 | 4.8 | 7.4 | 2.1 | 1.7 | .91 |
| 22 | .40 | 4.7 | 2.9 | 1.2 | 2.2 | 1.5 | e1.8 | 4.7 | 5.6 | 4.4 | 1.8 | .96 |
| 23 | 43 | 5.1 | 2.3 | 1.7 | 2.8 | 1.7 | e1.2 | 99 | 4.4 | 5.3 | 8.3 | 5.6 |
| 24 | 16 | 1.8 | 3.1 | .67 | 1.5 | 1.4 | e5.0 | 32 | 4.6 | 5.5 | 2.0 | 4.6 |
| 25 | 7.8 | .91 | 2.9 | .79 | 1.2 | 2.1 | e3.0 | 25 | 3.8 | 3.3 | 1.6 | 1.0 |
| 26 | 2.3 | .58 | 51 | .60 | 1.2 | 1.4 | e1.7 | 21 | 3.7 | 3.0 | 1.3 | .91 |
| 27 | 17 | 7.1 | 21 | .90 | 1.0 | 1.6 | e1.4 | 13 | 3.8 | 3.2 | 1.4 | .86 |
| 28 | 9.1 | 67 | 8.8 | 5.5 | 1.0 | 1.3 | 119 | 9.7 | 4.2 | 2.4 | 2.6 | 8.2 |
| 29 | 6.1 | 71 | 5.6 | 14 | --- | 1.3 | 229 | 8.2 | 3.9 | 2.2 | 2.5 | 3.5 |
| 30 | 6.2 | 31 | 4.1 | 2.4 | --- | 1.2 | 77 | 7.4 | 4.1 | 2.0 | 1.6 | 1.0 |
| 31 | 2.3 | --- | 3.0 | 4.5 | --- | 1.2 | --- | 6.8 | --- | 1.7 | 1.5 | --- |
| TOTAL | 195.51 | 228.52 | 168.73 | 64.75 | 49.10 | 40.37 | 630.21 | 594.7 | 169.5 | 136.4 | 85.5 | 155.57 |
| MEAN | 6.31 | 7.62 | 5.44 | 2.09 | 1.75 | 1.30 | 21.0 | 19.2 | 5.65 | 4.40 | 2.76 | 5.19 |
| MAX | 54 | 71 | 51 | 14 | 7.8 | 2.1 | 229 | 121 | 24 | 16 | 24 | 26 |
| MIN | .20 | .33 | .74 | .60 | .60 | .85 | .91 | 3.9 | 2.3 | 1.7 | 1.0 | .86 |
| AC-FT | 388 | 453 | 335 | 128 | 97 | 80 | 1250 | 1180 | 336 | 271 | 170 | 309 |
| CFSM | 1.25 | 1.51 | 1.08 | .42 | .35 | .26 | 4.18 | 3.81 | 1.12 | .87 | .55 | 1.03 |
| IN. | 1.45 | 1.69 | 1.25 | .48 | .36 | .30 | 4.66 | 4.40 | 1.25 | 1.01 | .63 | 1.15 |

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1981 - 1993, BY WATER YEAR (WY)

| | MEAN | 22.9 | 7.69 | 6.59 | 7.90 | 2.38 | 1.86 | 7.12 | 14.5 | 5.44 | 3.76 | 4.48 | 12.2 |
|------|------|------|------|------|------|------|------|------|------|------|------|------|------|
| MAX | 58.0 | 15.2 | 15.8 | 34.3 | 2.97 | 2.46 | 21.0 | 31.8 | 15.2 | 8.40 | 12.3 | 39.6 | |
| (WY) | 1990 | 1991 | 1982 | 1992 | 1992 | 1990 | 1993 | 1981 | 1992 | 1991 | 1989 | 1989 | |
| MIN | 4.59 | 2.19 | 1.69 | 1.47 | 1.75 | 1.30 | 1.32 | 1.42 | 1.16 | 1.45 | 1.03 | 1.72 | |
| (WY) | 1992 | 1992 | 1989 | 1989 | 1993 | 1993 | 1982 | 1989 | 1982 | 1982 | 1982 | 1992 | |

SUMMARY STATISTICS

FOR 1992 CALENDAR YEAR

FOR 1993 WATER YEAR

WATER YEARS 1981 - 1993

| | | | |
|--------------------------|---------|---------|-------|
| ANNUAL TOTAL | 3749.42 | 2518.86 | |
| ANNUAL MEAN | 10.2 | 6.90 | 7.82 |
| HIGHEST ANNUAL MEAN | | | 9.35 |
| LOWEST ANNUAL MEAN | | | 6.17 |
| HIGHEST DAILY MEAN | 415 | Jan 5 | 229 |
| LOWEST DAILY MEAN | .20 | Oct 4 | .20 |
| ANNUAL SEVEN-DAY MINIMUM | .33 | Oct 11 | .33 |
| INSTANTANEOUS PEAK FLOW | | | 1570 |
| INSTANTANEOUS PEAK STAGE | | | 10.38 |
| ANNUAL RUNOFF (AC-FT) | 7440 | 5000 | 5670 |
| ANNUAL RUNOFF (CFSM) | 2.04 | 1.37 | 1.56 |
| ANNUAL RUNOFF (INCHES) | 27.73 | 18.63 | 21.13 |
| 10 PERCENT EXCEEDS | 17 | 13 | 13 |
| 50 PERCENT EXCEEDS | 2.1 | 2.1 | 2.2 |
| 90 PERCENT EXCEEDS | .86 | .74 | 1.1 |

e Estimated

RIO GRANDE DE MANATI BASIN

50030700 RIO OROCOVIS NEAR OROCOVIS, PR

WATER-QUALITY RECORDS

LOCATION.--Lat 18°14'20", long 66°22'58", at flat low bridge about 300 ft (91 m) northwest of Highway 568, 1.0 mi (1.6 km) north of Orocovis plaza.

DRAINAGE AREA.--10.1 mi² (26.2 km²).

PERIOD OF RECORD.--Water year 1979 to current year.

WATER-QUALITY DATA, WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993

| DATE | TIME | DIS-CHARGE, INST. CUBIC FEET PER SECOND | SPE-CIFIC CON-DUCT-ANCE (US/CM) | PH WATER WHOLE FIELD (STAND-ARD UNITS) | TEMPER-ATURE WATER (DEG C) | TUR-BID-ITY (NTU) | OXYGEN, DIS-SOLVED (MG/L) | OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION) | OXYGEN DEMAND, CHEM-ICAL (HIGH LEVEL) (MG/L) | COLI-FORM, FECAL, UM-MF (COLS./100 ML) | STREP-TOCOCCTI FECAL, (COLS. PER 100 ML) |
|-----------|------|---|---------------------------------|--|----------------------------|-------------------|---------------------------|---|--|--|--|
| OCT 1992 | | | | | | | | | | | |
| 15... | 0850 | 9.4 | 313 | 7.9 | 22.0 | 16 | 5.9 | 72 | 11 | 3400 | 2400 |
| DEC 02... | 0840 | 18 | 238 | 6.7 | 22.0 | 84 | 5.0 | 60 | <10 | 2100 | 3900 |
| FEB 1993 | | | | | | | | | | | |
| 18... | 1120 | 8.8 | 270 | 8.2 | 22.0 | 7.6 | 7.0 | 83 | <10 | 2500 | K180 |
| APR 22... | 0905 | 7.9 | 313 | 7.7 | 21.0 | 46 | 7.5 | 92 | 10 | K1700 | 3400 |
| JUN 11... | 1115 | 11 | 283 | 8.0 | 24.5 | 32 | 7.5 | 99 | <10 | 3000 | 280 |
| SEP 17... | 1300 | 6.0 | 287 | 7.8 | 25.5 | 1.8 | 8.3 | 105 | <10 | 1200 | 660 |

| DATE | HARD-NESS TOTAL (MG/L AS CaCO3) | HARD-NESS NONCARB WH WAT TOT FLD (MG/L AS CaCO3) | CALCIUM DIS-SOLVED (MG/L AS Ca) | MAGNE-SIUM, DIS-SOLVED (MG/L AS Mg) | SODIUM, DIS-SOLVED (MG/L AS Na) | SODIUM AD-SORP-TION RATIO | POTAS-SIUM, DIS-SOLVED (MG/L AS K) | ALKA-LINITY WAT WH TOT FET (MG/L AS CaCO3) | SULFIDE TOTAL (MG/L AS S) | SULFATE DIS-SOLVED (MG/L AS SO4) | CHLO-RIDE, DIS-SOLVED (MG/L AS Cl) |
|-----------|---------------------------------|--|---------------------------------|-------------------------------------|---------------------------------|---------------------------|------------------------------------|--|---------------------------|----------------------------------|------------------------------------|
| OCT 1992 | | | | | | | | | | | |
| 15... | 120 | 2 | 28 | 11 | 12 | 0.5 | 1.7 | 130 | <0.5 | 11 | 10 |
| DEC 02... | -- | -- | -- | -- | -- | -- | -- | 98 | -- | -- | -- |
| FEB 1993 | | | | | | | | | | | |
| 18... | -- | -- | -- | -- | -- | -- | -- | 130 | -- | -- | -- |
| APR 22... | 140 | 12 | 35 | 12 | 14 | 0.5 | 1.8 | 130 | <0.5 | 11 | 14 |
| JUN 11... | -- | -- | -- | -- | -- | -- | -- | 95 | -- | -- | -- |
| SEP 17... | 120 | 5 | 30 | 10 | 12 | 0.5 | 1.8 | 100 | -- | 11 | 15 |

| DATE | FLUO-RIDE, DIS-SOLVED (MG/L AS F) | SILICA, DIS-SOLVED (MG/L AS SiO2) | SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L) | SOLIDS, DIS-SOLVED (TONS PER DAY) | RESIDUE TOTAL AT 105 DEG. C, SUS-PENDED (MG/L) | NITRO-GEN, NITRATE TOTAL (MG/L AS N) | NITRO-GEN, NITRITE TOTAL (MG/L AS N) | NITRO-GEN, NO2+NO3 TOTAL (MG/L AS N) | NITRO-GEN, AMMONIA TOTAL (MG/L AS N) | NITRO-GEN, ORGANIC TOTAL (MG/L AS N) |
|-----------|-----------------------------------|-----------------------------------|---|-----------------------------------|--|--------------------------------------|--------------------------------------|--------------------------------------|--------------------------------------|--------------------------------------|
| OCT 1992 | | | | | | | | | | |
| 15... | 0.10 | 31 | 172 | 4.36 | 8 | 0.970 | 0.030 | 1.00 | 0.060 | 0.44 |
| DEC 02... | -- | -- | -- | -- | 27 | 1.39 | 0.010 | 1.40 | 0.030 | 0.47 |
| FEB 1993 | | | | | | | | | | |
| 18... | -- | -- | -- | -- | 8 | 0.990 | 0.010 | 1.00 | 0.010 | 0.49 |
| APR 22... | 0.10 | 34 | 200 | 4.26 | 45 | 1.18 | 0.020 | 1.20 | 0.010 | 0.92 |
| JUN 11... | -- | -- | -- | -- | <1 | 1.06 | 0.040 | 1.10 | 0.080 | 0.92 |
| SEP 17... | 0.10 | 35 | 175 | 2.83 | 13 | 0.75 | 0.050 | 0.800 | 0.120 | 1.2 |

K = non-ideal count

RIO GRANDE DE MANATI BASIN

50030700 RIO OROCOVIS NEAR OROCOVIS, PR--Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993

| DATE | NITRO- GEN, AM- MONIA + ORGANIC TOTAL (MG/L AS N) | NITRO- GEN, TOTAL (MG/L AS N) | NITRO- GEN, TOTAL (MG/L AS NO3) | PHOS- PHORUS TOTAL (MG/L AS P) | ARSENIC TOTAL (UG/L AS AS) | BARIUM, TOTAL RECOV- ERABLE (UG/L AS BA) | BORON, TOTAL RECOV- ERABLE (UG/L AS B) | CADMIUM TOTAL RECOV- ERABLE (UG/L AS CD) | CHRO- MIUM, TOTAL RECOV- ERABLE (UG/L AS CR) | COPPER, TOTAL RECOV- ERABLE (UG/L AS CU) |
|-----------|---|---|---|--|-------------------------------------|---|---|---|--|---|
| OCT 1992 | | | | | | | | | | |
| 15... | 0.50 | 1.9 | 8.4 | 0.200 | <1 | <100 | <10 | <1 | <1 | <10 |
| DEC 02... | 0.50 | 2.1 | 9.3 | 0.210 | -- | -- | -- | -- | -- | -- |
| FEB 1993 | | | | | | | | | | |
| 18... | 0.20 | 1.2 | 8.4 | 0.150 | -- | -- | -- | -- | -- | -- |
| APR 22... | 0.50 | 1.7 | 7.5 | 0.160 | <1 | <100 | 40 | <1 | <1 | <10 |
| JUN 11... | 1.0 | 2.4 | 9.5 | 0.130 | -- | -- | -- | -- | -- | -- |
| SEP 17... | 1.2 | 1.5 | 9.0 | 0.180 | -- | -- | -- | -- | -- | -- |

[illegible]

RIO GRANDE DE MANATI BASIN

50031200 RIO GRANDE DE MANATI NEAR MOROVIS, PR

LOCATION.--Lat 18°17'45", long 66°24'47", Hydrologic Unit 21010001, on right bank, 0.1 mi (0.2 km) downstream from Quebrada Perchas, 0.8 mi (1.3 km) upstream from Río Sana Muerto, and 2.2 mi (3.5 km) south of Morovis.

DRAINAGE AREA.--55.2 mi² (143.0 km²).

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--January 1965 to current year.

GAGE.--Water-stage recorder and concrete control. Elevation of gage is 440 ft (134 m), from topographic map. Feb. 2, 1966 to Apr. 27, 1967, staff gage read twice daily.

REMARKS.--Records fair except those for estimated daily discharges, which are poor. Public water-supply pumpage, about 300 ft (91 m) above the station, influences low-flow discharges. Gage-height and precipitation satellite telemetry at station.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993
DAILY MEAN VALUES

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|-------|------|------|------|------|------|------|-------|-------|------|------|------|------|
| 1 | 97 | 39 | 116 | 87 | 176 | 34 | 21 | 530 | 93 | 53 | 50 | 40 |
| 2 | 56 | 35 | 91 | 76 | 85 | 38 | 21 | 730 | 89 | 50 | 50 | 37 |
| 3 | 33 | 51 | 66 | 74 | 78 | 35 | 20 | 402 | 85 | 57 | 47 | 34 |
| 4 | 106 | 156 | 55 | 76 | 63 | 32 | 19 | 207 | 81 | 59 | 44 | 82 |
| 5 | 305 | 133 | 47 | 66 | 56 | 31 | 19 | 173 | 75 | 49 | 44 | 102 |
| 6 | 284 | 74 | 44 | 69 | 49 | 32 | 18 | 160 | 74 | 47 | 45 | 211 |
| 7 | 154 | 56 | 39 | 126 | 46 | 31 | 18 | 146 | 70 | 48 | 43 | 185 |
| 8 | 75 | 45 | 35 | 141 | 43 | 32 | 109 | 185 | 74 | 59 | 40 | 139 |
| 9 | 48 | 43 | 35 | 91 | 41 | 32 | 165 | 490 | 78 | 46 | 40 | 72 |
| 10 | 41 | 39 | 33 | 76 | 39 | 32 | 160 | 220 | 74 | 45 | 40 | 56 |
| 11 | 60 | 36 | 31 | 67 | 38 | 28 | 322 | 178 | 65 | 143 | 42 | 53 |
| 12 | 32 | 55 | 28 | 66 | 39 | 29 | 238 | 155 | 63 | 150 | 41 | 43 |
| 13 | 25 | 102 | 28 | 61 | 40 | 29 | 383 | 138 | 61 | 79 | 38 | 39 |
| 14 | 24 | 65 | 105 | 58 | 36 | 28 | 436 | 153 | 59 | 102 | 36 | 38 |
| 15 | 29 | 45 | 213 | 54 | 35 | 28 | 356 | 137 | 58 | 68 | 37 | 43 |
| 16 | 41 | 54 | 93 | 51 | 42 | 42 | 304 | 124 | 66 | 58 | 202 | 65 |
| 17 | 171 | 67 | 88 | 50 | 63 | 51 | 241 | 117 | 54 | 54 | 133 | 194 |
| 18 | 275 | 54 | 85 | 47 | 42 | 41 | 180 | 111 | 52 | 49 | 64 | 227 |
| 19 | 187 | 48 | 70 | 44 | 37 | 33 | 127 | 106 | 110 | 47 | 50 | 255 |
| 20 | 101 | 47 | 58 | 44 | 47 | 33 | 151 | 104 | 169 | 48 | 44 | 141 |
| 21 | 55 | 61 | 49 | 43 | 71 | 31 | 189 | 102 | 94 | 47 | 39 | 78 |
| 22 | 53 | 95 | 81 | 50 | 51 | 30 | 165 | 106 | 78 | 80 | 41 | 58 |
| 23 | 104 | 156 | 89 | 78 | 41 | 35 | 107 | 270 | 66 | 125 | 67 | 92 |
| 24 | 158 | 104 | 93 | 51 | 40 | 36 | 87 | 189 | 60 | 128 | 43 | 176 |
| 25 | 169 | 76 | 101 | 48 | 37 | 29 | 93 | 169 | 57 | 108 | 37 | 81 |
| 26 | 90 | 60 | 492 | 45 | 37 | 25 | 74 | 178 | 53 | 85 | 37 | 68 |
| 27 | 56 | 169 | 270 | 42 | 36 | 25 | 68 | 137 | 51 | 76 | 36 | 79 |
| 28 | 69 | 290 | 175 | 44 | 34 | 22 | 203 | 120 | 52 | 60 | 47 | 99 |
| 29 | 62 | 196 | 142 | 181 | --- | 20 | 949 | 115 | 56 | 54 | 64 | 88 |
| 30 | 93 | 182 | 119 | 99 | --- | 30 | 506 | 108 | 80 | 53 | 67 | 66 |
| 31 | 50 | --- | 101 | 128 | --- | 33 | --- | 104 | --- | 53 | 55 | --- |
| TOTAL | 3103 | 2633 | 3072 | 2233 | 1442 | 987 | 5749 | 6164 | 2197 | 2180 | 1663 | 2941 |
| MEAN | 100 | 87.8 | 99.1 | 72.0 | 51.5 | 31.8 | 192 | 199 | 73.2 | 70.3 | 53.6 | 98.0 |
| MAX | 305 | 290 | 492 | 181 | 176 | 51 | 949 | 730 | 169 | 150 | 202 | 255 |
| MIN | 24 | 35 | 28 | 42 | 34 | 20 | 18 | 102 | 51 | 45 | 36 | 34 |
| AC-FT | 6150 | 5220 | 6090 | 4430 | 2860 | 1960 | 11400 | 12230 | 4360 | 4320 | 3300 | 5830 |
| CFSM | 1.81 | 1.59 | 1.80 | 1.30 | .93 | .58 | 3.47 | 3.60 | 1.33 | 1.27 | .97 | 1.78 |
| IN. | 2.09 | 1.77 | 2.07 | 1.50 | .97 | .67 | 3.87 | 4.15 | 1.48 | 1.47 | 1.12 | 1.98 |

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1965 - 1993, BY WATER YEAR (WY)

| | 1965 | 1966 | 1967 | 1968 | 1969 | 1970 | 1971 | 1972 | 1973 | 1974 | 1975 | 1976 | 1977 | 1978 | 1979 | 1980 | 1981 | 1982 | 1983 | 1984 | 1985 | 1986 | 1987 | 1988 | 1989 | 1990 | 1991 | 1992 | 1993 |
|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|
| MEAN | 165 | 155 | 117 | 83.5 | 65.9 | 69.1 | 117 | 171 | 65.5 | 49.2 | 58.8 | 93.4 | | | | | | | | | | | | | | | | | |
| MAX | 1037 | 491 | 522 | 191 | 179 | 226 | 412 | 915 | 173 | 157 | 435 | 386 | | | | | | | | | | | | | | | | | |
| (WY) | 1971 | 1971 | 1966 | 1992 | 1969 | 1972 | 1969 | 1985 | 1987 | 1979 | 1979 | 1979 | | | | | | | | | | | | | | | | | |
| MIN | 24.0 | 28.3 | 27.9 | 24.7 | 23.4 | 12.7 | 10.6 | 23.6 | 16.9 | 18.5 | 9.70 | 25.0 | | | | | | | | | | | | | | | | | |
| (WY) | 1978 | 1974 | 1984 | 1984 | 1984 | 1984 | 1984 | 1977 | 1977 | 1977 | 1984 | 1977 | | | | | | | | | | | | | | | | | |

SUMMARY STATISTICS

FOR 1992 CALENDAR YEAR

FOR 1993 WATER YEAR

WATER YEARS 1965 - 1993

| | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|--------------------------|-------|--------|-------|--------|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|
| ANNUAL TOTAL | 32289 | | 34364 | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ANNUAL MEAN | 88.2 | | 94.1 | | | | | | | | | | | | | | | | | | | | | | | | | | |
| HIGHEST ANNUAL MEAN | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| LOWEST ANNUAL MEAN | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| HIGHEST DAILY MEAN | 2480 | Jan 5 | 949 | Apr 29 | | | | | | | | | | | | | | | | | | | | | | | | | |
| LOWEST DAILY MEAN | 17 | Sep 28 | 18 | Apr 6 | | | | | | | | | | | | | | | | | | | | | | | | | |
| ANNUAL SEVEN-DAY MINIMUM | 20 | Sep 11 | 19 | Apr 1 | | | | | | | | | | | | | | | | | | | | | | | | | |
| INSTANTANEOUS PEAK FLOW | | | 6040 | Apr 29 | | | | | | | | | | | | | | | | | | | | | | | | | |
| INSTANTANEOUS PEAK STAGE | | | 6.56 | Apr 29 | | | | | | | | | | | | | | | | | | | | | | | | | |
| INSTANTANEOUS LOW FLOW | | | 17 | Mar 30 | | | | | | | | | | | | | | | | | | | | | | | | | |
| ANNUAL RUNOFF (AC-FT) | 64050 | | 68160 | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ANNUAL RUNOFF (CFSM) | 1.60 | | 1.71 | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ANNUAL RUNOFF (INCHES) | 21.76 | | 23.16 | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 10 PERCENT EXCEEDS | 170 | | 181 | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 50 PERCENT EXCEEDS | 48 | | 61 | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 90 PERCENT EXCEEDS | 26 | | 33 | | | | | | | | | | | | | | | | | | | | | | | | | | |

e Estimated

RIO GRANDE DE MANATI BASIN

50031200 RIO GRANDE DE MANATI NEAR MOROVIS, PR--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Water years 1968 to current year.

WATER-QUALITY DATA, WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993

| DATE | TIME | DIS- CHARGE, INST. CUBIC FEET PER SECOND | SPE- CIFIC CON- DUCT- ANCE (US/CM) | PH WATER WHOLE FIELD (STAND- ARD UNITS) | TEMPER- ATURE WATER (DEG C) | TUR- BID- ITY (NTU) | OXYGEN, DIS- SOLVED (MG/L) | OXYGEN, DIS- SOLVED (PER- CENT SATUR- ATION) | OXYGEN DEMAND, CHEM- ICAL (HIGH LEVEL) (MG/L) | COLI- FORM, FECAL, 0.45 UM-MF (COLS./ 100 ML) | STREP- TOCOCCI FECAL, (COLS. PER 100 ML) |
|-----------|------|--|---|---|--------------------------------------|------------------------------|-------------------------------------|--|---|---|---|
| OCT 1992 | | | | | | | | | | | |
| 15... | 1105 | 27 | 269 | 7.8 | 27.0 | 6.4 | 6.4 | 80 | 11 | K190 | K140 |
| DEC 02... | 1050 | 93 | 245 | 6.7 | 24.0 | 72 | 6.0 | 71 | 12 | 580 | 1800 |
| FEB 1993 | | | | | | | | | | | |
| 18... | 0945 | 41 | 265 | 7.7 | 22.0 | 23 | 6.8 | 77 | <10 | 1800 | 710 |
| APR 22... | 1050 | 130 | 220 | 7.4 | 24.0 | 100 | 8.8 | 104 | 13 | K8000 | 13000 |
| JUN 11... | 0930 | 65 | 262 | 7.7 | 25.5 | 2.0 | 8.5 | 103 | <10 | K620 | K60000 |
| SEP 23... | 0945 | 47 | 257 | 7.7 | 25.5 | 6.5 | 6.8 | 82 | <10 | 1000 | 200 |

| DATE | HARD- NESS TOTAL (MG/L AS CaCO3) | HARD- NESS NONCARB WH WAT TOT FLD MG/L AS CaCO3 | CALCIUM DIS- SOLVED (MG/L AS CA) | MAGNE- SIUM, DIS- SOLVED (MG/L AS MG) | SODIUM, DIS- SOLVED (MG/L AS NA) | SODIUM AD- SORP- TION RATIO | POTAS- SIUM, DIS- SOLVED (MG/L AS K) | ALKA- LINITY WAT WH TOT FET FIELD MG/L AS CaCO3 | SULFIDE TOTAL (MG/L AS S) | SULFATE DIS- SOLVED (MG/L AS SO4) | CHLO- RIDE, DIS- SOLVED (MG/L AS CL) |
|-----------|---|---|--|--|--|---|---|---|------------------------------------|---|---|
| OCT 1992 | | | | | | | | | | | |
| 15... | 88 | 8 | 21 | 8.7 | 11 | 0.5 | 2.0 | 120 | <0.5 | 11 | 12 |
| DEC 02... | -- | -- | -- | -- | -- | -- | -- | 98 | -- | -- | -- |
| FEB 1993 | | | | | | | | | | | |
| 18... | -- | -- | -- | -- | -- | -- | -- | 100 | -- | -- | -- |
| APR 22... | 86 | 10 | 20 | 8.8 | 12 | 0.6 | 2.1 | 78 | <0.5 | 9.0 | 13 |
| JUN 11... | -- | -- | -- | -- | -- | -- | -- | 98 | -- | -- | -- |
| SEP 23... | 100 | 15 | 25 | 10 | 11 | 0.5 | 2.5 | 110 | -- | 9.5 | 14 |

| DATE | FLUO- RIDE, DIS- SOLVED (MG/L AS F) | SILICA, DIS- SOLVED (MG/L AS SiO2) | SOLIDS, SUM OF CONSTITUENTS, DIS- SOLVED (MG/L) | SOLIDS, DIS- SOLVED (TONS PER DAY) | RESIDUE TOTAL AT 105 DEG. C, SUS- PENDED (MG/L) | NITRO- GEN, NITRATE TOTAL (MG/L AS N) | NITRO- GEN, NITRITE TOTAL (MG/L AS N) | NITRO- GEN, NO2+NO3 TOTAL (MG/L AS N) | NITRO- GEN, AMMONIA TOTAL (MG/L AS N) | NITRO- GEN, ORGANIC TOTAL (MG/L AS N) |
|-----------|--|--|--|---|---|--|--|--|--|--|
| OCT 1992 | | | | | | | | | | |
| 15... | <0.10 | 26 | 145 | 10.6 | 3 | 0.580 | 0.020 | 0.600 | 0.070 | 0.33 |
| DEC 02... | -- | -- | -- | -- | 67 | 0.490 | 0.010 | 0.500 | 0.010 | 0.19 |
| FEB 1993 | | | | | | | | | | |
| 18... | -- | -- | -- | -- | 25 | 1.67 | 0.030 | 1.70 | 0.060 | 1.4 |
| APR 22... | <0.10 | 25 | 137 | 48.0 | 135 | 1.27 | 0.030 | 1.30 | 0.050 | 0.85 |
| JUN 11... | -- | -- | -- | -- | 3 | 0.96 | 0.040 | 1.00 | 0.080 | 1.3 |
| SEP 23... | 0.10 | 27 | 165 | 20.9 | 19 | 0.76 | 0.760 | 0.040 | 0.800 | 1.5 |

K = non-ideal count

RIO GRANDE DE MANATI BASIN

50032290 LAGO EL GUINEO AT DAMSITE, PR

LOCATION.--Lat 18°09'41", long 66°31'36", Hydrologic Unit 21010001, at damsite on Río Toro Negro, 3.0 mi (4.8 km) northwest from Villalba plaza and 1.9 mi (3.1 km) northeast of Cerro Maravillas. The reservoir itself fixes the territorial limits between the Municipality of Ciales and Orocovis.

DRAINAGE AREA.--1.64 mi² (4.25 km²).

ELEVATION RECORDS

PERIOD OF RECORD.--May 1988 to current year.

GAGE.--Water-stage recorder. Datum of gage is mean sea level.

REMARKS.--Lago Guineo was completed in 1931. It provides a maximum storage of approximately 2,180 ac-ft (2.688 hm³) for power and irrigation. Waters are discharged through an outlet power tunnel into the Río Toro Negro and conveyed to the head water works of Toro Negro Hydroelectric Plant No.2, for energy generation at Toro Negro Hydroelectric plant No.1, and are discharged into the Guayabal Reservoir to be later used for irrigation at South Coast Irrigation System. The dam is rockfill with a vertical concrete corewall, rock toes, and riprap facing of upstream slope, with a total length of 565 ft (172 m), a maximum structural height of 125 ft (38 m) to top of corewall. At a maximum reservoir water surface elevation the uncontrolled morning-glory tunnel spillway crest has an elevation of 2,966 ft (904 m) above mean sea level and a design capacity of 7,000 ft³/s. The dam is owned by Puerto Rico Electric Power Authority. Gage-height and precipitation satellite telemetry at station.

EXTREMES OBSERVED FOR PERIOD OF RECORD.--Maximum elevation 2,961.70 ft (902.73 m), Oct. 21, 1990; minimum elevation, 2,919.79 ft (899.95 m), May 27, 1988.

EXTREMES OBSERVED FOR CURRENT YEAR.--Maximum elevation, 2,961.21 ft (902.58 m), Oct. 23; minimum elevation, 2,936.10 ft (894.92 m), Sept. 4.

Capacity Table
(based on data from Puerto Rico Electric Power Authority)

| Elevation, in feet | Contents, in acre-feet | Elevation, in feet | Contents, in acre-feet |
|--------------------|------------------------|--------------------|------------------------|
| 2,872 | 0 | 2,943 | 1,029 |
| 2,919 | 361 | 2,950 | 1,308 |
| 2,925 | 491 | 2,961 | 1,852 |

ELEVATION (FEET NGVD), WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993
DAILY OBSERVATION AT 24:00 VALUES

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|
| 1 | 2952.02 | 2960.76 | 2959.95 | 2955.10 | 2955.61 | 2956.13 | 2956.54 | 2960.23 | A | 2954.59 | 2947.40 | 2937.32 |
| 2 | 2952.18 | 2960.72 | 2959.58 | 2955.24 | 2955.77 | 2956.17 | 2956.34 | 2960.45 | 2960.18 | 2954.21 | 2946.46 | 2936.97 |
| 3 | 2952.32 | 2960.72 | 2959.25 | 2955.36 | 2955.91 | 2956.20 | 2956.36 | 2960.63 | 2959.99 | 2954.06 | 2945.16 | 2936.67 |
| 4 | 2953.31 | 2960.72 | 2958.87 | 2955.00 | 2956.03 | 2956.25 | 2956.39 | 2960.56 | 2959.56 | 2954.21 | 2944.25 | 2937.87 |
| 5 | 2954.01 | 2960.71 | 2958.47 | 2954.80 | 2956.12 | 2956.29 | 2956.24 | 2960.53 | 2958.80 | 2954.34 | 2943.26 | 2938.24 |
| 6 | 2955.82 | 2960.71 | 2958.67 | 2954.90 | 2956.22 | 2956.32 | 2956.08 | 2960.55 | 2959.00 | 2953.94 | 2942.86 | 2938.43 |
| 7 | 2956.77 | 2960.71 | 2958.21 | 2954.99 | 2956.30 | 2956.35 | 2956.09 | 2960.44 | 2958.72 | 2953.53 | 2942.30 | 2938.14 |
| 8 | 2957.25 | 2960.71 | A | 2955.07 | 2956.40 | 2956.40 | 2955.89 | 2960.55 | 2958.55 | 2953.11 | 2942.39 | 2938.43 |
| 9 | 2958.99 | 2960.71 | A | 2955.15 | 2956.48 | 2956.41 | 2955.91 | 2960.78 | 2958.46 | 2952.57 | A | 2938.66 |
| 10 | 2959.51 | 2960.70 | A | 2955.23 | 2956.56 | 2956.31 | 2956.03 | 2960.70 | A | 2952.07 | 2940.93 | 2939.04 |
| 11 | 2959.87 | 2960.70 | A | 2955.31 | 2956.64 | 2956.35 | 2956.13 | 2960.68 | A | 2952.80 | 2940.52 | 2939.24 |
| 12 | 2960.17 | 2960.69 | A | 2954.91 | 2956.74 | 2956.39 | 2956.04 | 2960.47 | A | 2952.49 | 2940.00 | 2939.40 |
| 13 | 2960.40 | 2960.73 | A | 2954.97 | 2956.28 | 2956.42 | 2956.49 | 2960.19 | A | A | 2939.19 | 2939.54 |
| 14 | 2960.63 | 2960.75 | A | 2955.09 | 2956.36 | 2956.46 | 2956.50 | 2960.24 | A | A | A | 2939.67 |
| 15 | 2960.70 | 2960.69 | A | 2955.16 | 2956.42 | 2956.52 | 2956.39 | 2959.92 | A | A | A | 2939.80 |
| 16 | 2960.72 | 2960.78 | A | 2954.95 | 2956.54 | 2956.56 | 2956.45 | 2959.75 | A | 2952.18 | A | 2940.09 |
| 17 | 2960.73 | 2960.38 | 2955.55 | 2954.47 | 2956.62 | 2956.58 | 2956.72 | 2959.30 | A | 2951.78 | A | 2941.90 |
| 18 | 2960.69 | 2960.08 | 2955.67 | 2954.53 | 2956.68 | 2956.62 | 2956.89 | 2958.88 | A | 2951.91 | 2939.68 | 2943.19 |
| 19 | 2960.69 | 2959.78 | 2955.81 | 2954.08 | 2956.74 | 2956.64 | 2957.06 | 2958.44 | A | 2951.35 | 2939.29 | 2943.54 |
| 20 | 2960.69 | 2960.72 | 2955.95 | 2954.16 | 2956.02 | 2956.69 | 2957.12 | 2958.22 | A | 2950.89 | 2939.22 | 2944.18 |
| 21 | 2960.69 | 2960.30 | 2956.07 | 2954.24 | 2956.10 | 2956.72 | 2957.53 | 2959.28 | A | 2950.39 | 2938.51 | 2944.43 |
| 22 | 2960.74 | 2960.60 | 2956.23 | 2954.34 | 2956.16 | 2956.75 | 2957.64 | 2959.21 | A | 2950.09 | 2938.63 | 2943.91 |
| 23 | 2960.82 | 2960.20 | 2956.35 | 2953.86 | 2956.22 | 2956.67 | 2957.70 | 2960.28 | A | 2949.69 | 2938.24 | 2944.49 |
| 24 | 2960.87 | 2959.80 | 2956.04 | 2953.92 | 2956.29 | 2956.71 | 2957.77 | 2960.20 | 2956.39 | 2948.75 | 2937.81 | 2944.78 |
| 25 | 2960.72 | 2959.80 | 2956.18 | 2953.98 | 2956.01 | 2956.75 | 2957.82 | 2960.16 | 2956.10 | A | 2937.44 | 2945.01 |
| 26 | 2960.71 | 2960.01 | 2955.95 | 2954.04 | 2955.97 | 2956.79 | 2957.65 | 2960.73 | 2955.73 | A | 2936.92 | 2945.22 |
| 27 | 2960.70 | 2960.21 | 2956.09 | 2954.14 | 2956.02 | 2956.83 | 2957.70 | 2960.57 | 2955.87 | A | 2936.88 | A |
| 28 | 2960.70 | 2960.13 | 2955.68 | 2955.34 | 2956.07 | 2956.85 | 2958.45 | 2960.28 | 2955.74 | 2948.33 | 2937.63 | A |
| 29 | 2960.78 | 2960.81 | 2955.50 | 2956.39 | --- | 2956.88 | 2959.57 | A | 2955.39 | 2947.82 | 2937.86 | A |
| 30 | 2960.72 | 2960.25 | 2955.10 | 2956.08 | --- | 2956.70 | 2959.96 | A | 2955.00 | 2947.20 | 2937.71 | A |
| 31 | 2960.76 | --- | 2954.99 | 2955.87 | --- | 2956.71 | --- | A | --- | 2947.31 | 2937.49 | A |
| MEAN | 2958.89 | 2960.49 | --- | 2954.86 | 2956.26 | 2956.53 | 2956.98 | --- | --- | --- | --- | --- |
| MAX | 2960.87 | 2960.81 | --- | 2956.39 | 2956.74 | 2956.88 | 2959.96 | --- | --- | --- | --- | --- |
| MIN | 2952.02 | 2959.78 | --- | 2953.86 | 2955.61 | 2956.13 | 2955.89 | --- | --- | --- | --- | --- |

A No gage-height record

RIO GRANDE DE MANATI BASIN

50032590 LAGO DE MATRULLAS AT DAMSITE, PR

LOCATION.--Lat 18°12'46", long 66°28'50", Hydrologic Unit 21010001, in concrete house at damsite, and 5.8 mi (9.3 km) southwest of Orocovis.

DRAINAGE AREA.--4.46 mi² (11.55 km²).

ELEVATION RECORDS

PERIOD OF RECORD.--May 1988 to current year.

GAGE.--Water-stage recorder. Datum of gage is mean sea level.

REMARKS.--Lago Matrullas was completed in 1934. The dam is an earthfill structure about 120 ft (37 m) height, a top width of 30 ft (9 m) and a length of 710 ft (216 m), and has a maximum storage capacity of about 4,274 ac-ft (5,220 hm³) at top of dam elevation. The Matrullas Dam is owned by the Puerto Rico Electric Power Authority and is part of the Toro Negro Hydroelectric Project; a project developed by the P.R.E.P.A. for the primary purpose of generating electric power. Discharges from the Power Plants are collected by the Jacaguas River which flows into Guayabal Dam, at which dam they are regulated for irrigation of lands served by the Juana Díaz Canal. Gage-height and precipitation satellite telemetry at station.

EXTREMES OBSERVED FOR PERIOD OF RECORD.--Maximum elevation 2,413.56 ft (735.65 m), Jan. 6, 1992; minimum elevation, 2,392.81 ft (729.33 m), Sept. 10, 1989.

EXTREMES OBSERVED FOR CURRENT YEAR.--Maximum elevation, 2,412.38 ft (735.29 m), Apr. 29,30 and May 3; minimum elevation, 2,403.93 ft (732.72 m), Sept. 28.

Capacity Table
(based on data from Puerto Rico Electric Power Authority)

| Elevation, in feet | Contents, in acre-feet | Elevation, in feet | Contents, in acre-feet |
|--------------------|------------------------|--------------------|------------------------|
| 2,338 | 2 | 2,399 | 1,845 |
| 2,360 | 302 | 2,415 | 2,945 |

ELEVATION (FEET NGVD), WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993
DAILY OBSERVATION AT 24:00 VALUES

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|
| 1 | 2410.22 | 2411.85 | 2411.54 | 2410.73 | 2409.30 | 2411.19 | 2411.13 | 2412.05 | 2411.72 | 2410.33 | 2407.49 | 2406.21 |
| 2 | 2410.22 | 2411.67 | 2411.44 | 2410.95 | 2409.27 | 2411.20 | 2410.99 | 2412.37 | 2411.65 | 2410.14 | 2407.56 | 2406.04 |
| 3 | 2409.99 | 2411.72 | 2411.38 | 2411.19 | 2409.25 | 2411.20 | 2411.06 | 2412.01 | 2411.52 | 2409.93 | 2407.66 | 2405.82 |
| 4 | 2409.62 | 2411.54 | 2411.30 | 2411.17 | 2409.08 | 2411.21 | 2411.16 | 2411.81 | 2411.50 | 2409.98 | 2407.81 | 2406.14 |
| 5 | 2409.98 | 2411.36 | 2411.19 | 2411.09 | 2408.87 | 2411.21 | 2411.12 | 2411.72 | 2411.66 | 2410.15 | 2407.97 | 2406.87 |
| 6 | 2411.19 | 2411.24 | 2411.37 | 2411.13 | 2408.93 | 2411.27 | 2411.09 | 2411.67 | 2411.72 | 2410.15 | 2407.91 | 2406.99 |
| 7 | 2411.43 | 2411.08 | 2411.37 | 2410.96 | 2409.12 | 2411.37 | 2411.05 | 2411.65 | 2411.58 | 2410.09 | 2407.94 | 2406.83 |
| 8 | 2411.50 | 2411.15 | 2411.22 | 2410.63 | 2409.10 | 2411.38 | 2411.02 | 2411.73 | 2411.46 | 2409.99 | 2408.07 | 2406.62 |
| 9 | 2411.40 | 2411.13 | 2411.05 | 2410.25 | 2409.11 | 2411.37 | 2411.12 | 2411.77 | 2411.34 | 2409.84 | 2408.02 | 2406.35 |
| 10 | 2411.23 | 2411.01 | 2410.85 | 2410.25 | 2409.15 | 2411.36 | 2411.22 | 2411.73 | 2411.17 | 2409.59 | 2407.82 | 2406.21 |
| 11 | 2411.16 | 2410.95 | 2410.63 | 2410.43 | 2409.21 | 2411.35 | 2412.08 | 2411.70 | 2410.99 | 2409.87 | 2407.55 | 2406.02 |
| 12 | 2411.31 | 2410.91 | 2410.46 | 2410.33 | 2409.26 | 2411.34 | 2411.64 | 2411.73 | 2410.72 | 2410.02 | 2407.34 | 2405.69 |
| 13 | 2411.25 | 2410.70 | 2410.61 | 2410.05 | 2409.15 | 2411.40 | 2411.56 | 2411.66 | 2410.83 | 2410.09 | 2407.16 | 2405.41 |
| 14 | 2411.18 | 2410.40 | 2410.67 | 2409.70 | 2409.19 | 2411.47 | 2411.60 | 2411.77 | 2410.81 | 2410.27 | 2407.16 | 2405.12 |
| 15 | 2411.21 | 2410.50 | 2410.70 | 2409.23 | 2409.33 | 2411.46 | 2411.62 | 2411.58 | 2410.66 | 2410.12 | 2407.26 | 2404.82 |
| 16 | 2411.13 | 2410.90 | 2410.61 | 2408.85 | 2409.44 | 2411.45 | 2411.59 | 2411.44 | 2410.51 | 2409.88 | 2407.72 | 2404.53 |
| 17 | 2411.03 | 2411.13 | 2410.41 | 2408.50 | 2409.49 | 2411.37 | 2411.65 | 2411.37 | 2410.27 | 2409.62 | 2407.73 | 2404.29 |
| 18 | 2411.11 | 2411.07 | 2410.17 | 2408.54 | 2409.51 | 2411.24 | 2411.66 | 2411.23 | 2410.08 | 2409.63 | 2407.64 | 2404.32 |
| 19 | 2411.09 | 2410.95 | 2410.27 | 2408.42 | 2409.57 | 2411.15 | 2411.63 | 2411.07 | 2410.59 | 2409.47 | 2407.50 | 2404.46 |
| 20 | 2411.06 | 2411.44 | 2410.53 | 2408.13 | 2409.87 | 2411.26 | 2411.52 | 2410.90 | 2411.21 | 2409.22 | 2407.28 | 2404.40 |
| 21 | 2411.01 | 2411.47 | 2410.46 | 2407.69 | 2410.21 | 2411.37 | 2411.45 | 2410.74 | 2411.29 | 2409.01 | 2406.94 | 2404.18 |
| 22 | 2410.97 | 2411.63 | 2410.32 | 2407.57 | 2410.33 | 2411.48 | 2411.50 | 2410.64 | 2411.41 | 2408.86 | 2406.70 | 2404.15 |
| 23 | 2411.74 | 2411.51 | 2410.11 | 2407.52 | 2410.39 | 2411.46 | 2411.48 | 2412.07 | 2411.31 | 2408.73 | 2406.64 | 2404.19 |
| 24 | 2411.72 | 2411.39 | 2409.86 | 2407.55 | 2410.44 | 2411.38 | 2411.62 | 2411.78 | 2411.18 | 2408.51 | 2406.48 | 2404.03 |
| 25 | 2411.75 | 2411.23 | 2409.96 | 2407.49 | 2410.62 | 2411.28 | 2411.65 | 2411.85 | 2411.04 | 2408.54 | 2406.31 | 2404.22 |
| 26 | 2411.60 | 2411.29 | 2410.24 | 2407.51 | 2410.79 | 2411.18 | 2411.51 | 2411.73 | 2410.87 | 2408.71 | 2406.13 | 2404.27 |
| 27 | 2411.56 | 2411.13 | 2410.67 | 2407.64 | 2410.94 | 2411.26 | 2411.39 | 2411.65 | 2410.96 | 2408.63 | 2406.07 | 2404.02 |
| 28 | 2411.41 | 2411.84 | 2410.75 | 2407.95 | 2411.10 | 2411.35 | 2411.94 | 2411.81 | 2410.90 | 2408.41 | 2406.30 | 2404.02 |
| 29 | 2411.30 | 2412.14 | 2410.68 | 2409.07 | --- | 2411.31 | 2412.38 | 2411.66 | 2410.72 | 2408.20 | 2406.50 | 2404.10 |
| 30 | 2411.43 | 2411.69 | 2410.57 | 2409.30 | --- | 2411.33 | 2411.94 | 2411.77 | 2410.53 | 2407.95 | 2406.49 | 2404.02 |
| 31 | 2411.45 | --- | 2410.53 | 2409.31 | --- | 2411.27 | --- | 2411.78 | --- | 2407.56 | 2406.36 | --- |
| MEAN | 2411.10 | 2411.27 | 2410.71 | 2409.33 | 2409.64 | 2411.32 | 2411.48 | 2411.63 | 2411.07 | 2409.40 | 2407.21 | 2405.14 |
| MAX | 2411.75 | 2412.14 | 2411.54 | 2411.19 | 2411.10 | 2411.48 | 2412.38 | 2412.37 | 2411.72 | 2410.33 | 2408.07 | 2406.99 |
| MIN | 2409.62 | 2410.40 | 2409.86 | 2407.49 | 2408.87 | 2411.15 | 2410.99 | 2410.64 | 2410.08 | 2407.56 | 2406.07 | 2404.02 |

WTR YR 1993 MEAN 2409.95 MAX 2412.38 MIN 2404.02

RIO GRANDE DE MANATI BASIN
50034000 RIO BAUTA NEAR OROCOVIS, PR

LOCATION.--Lat 18°14'10", long 66°27'18", Hydrologic Unit 21010001, on left bank, at bridge on Highway 157 (12.1 km), and 4.2 mi (6.8 km) west of Orocovis.

DRAINAGE AREA.--16.7 mi² (43.3 km²).

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--February 1959 to April 1966 (annual low-flow measurements only), February to September 1969 (occasional measurements only), October 1969 to September 1982, October 1988 to current year.

GAGE.--Water-stage recorder and crest-stage gage. Datum of gage is 772.82 ft (235.556 m) above mean sea level.

REMARKS.--Records fair except those for estimated daily discharges, which are poor. Gage-height and precipitation satellite telemetry at station.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993
DAILY MEAN VALUES

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|-------|--------|------|------|------|-------|-------|--------|------|------|------|-------|--------|
| 1 | 21 | 69 | 76 | 31 | 38 | e9.6 | 9.1 | e138 | 33 | e18 | 10 | e9.8 |
| 2 | 11 | 64 | 52 | 29 | 21 | e13 | 9.1 | e354 | 30 | e16 | 10 | e10 |
| 3 | 11 | 61 | 41 | 29 | 21 | e12 | 9.2 | e165 | e27 | e17 | 10 | e12 |
| 4 | 8.6 | 60 | 35 | 28 | 18 | e11 | 9.5 | e68 | 25 | e22 | 9.8 | e200 |
| 5 | e93 | 47 | 33 | 27 | 16 | e10 | 9.4 | e43 | 23 | e17 | 9.7 | e210 |
| 6 | e143 | 38 | 30 | 28 | 15 | 10 | 9.1 | 33 | 22 | e16 | 9.8 | e220 |
| 7 | e85 | 33 | 28 | 33 | 14 | 9.7 | 9.3 | 28 | 21 | e15 | 9.7 | e90 |
| 8 | 36 | 28 | 26 | 33 | 13 | 9.4 | 9.3 | 26 | 21 | e16 | 9.6 | 25 |
| 9 | 42 | 26 | 25 | 27 | 13 | 9.5 | 11 | 30 | 21 | e13 | 9.6 | 17 |
| 10 | 32 | 24 | 25 | 25 | 13 | 9.2 | 11 | e33 | 20 | 12 | 9.6 | 14 |
| 11 | 39 | 23 | 24 | 24 | 12 | 9.0 | 100 | 29 | 18 | e29 | 9.6 | 14 |
| 12 | 18 | 22 | 23 | 24 | 12 | 9.0 | 29 | 24 | 17 | e26 | 9.8 | 12 |
| 13 | 13 | 22 | 24 | 23 | 12 | 9.1 | 181 | 21 | 17 | 17 | 9.2 | 10 |
| 14 | e49 | 21 | e59 | 24 | 12 | 9.1 | 76 | 41 | 16 | 26 | 9.0 | 10 |
| 15 | e81 | 20 | e67 | 22 | 12 | 9.2 | e68 | 33 | 18 | 16 | 9.2 | 10 |
| 16 | e28 | 27 | 38 | 22 | 12 | 9.6 | e62 | 24 | 20 | 14 | 45 | 10 |
| 17 | 23 | 37 | 33 | 22 | 14 | 9.8 | e29 | 19 | 16 | 13 | e21 | 20 |
| 18 | 25 | 24 | 30 | 22 | 12 | 9.4 | e28 | 17 | 15 | 12 | 13 | 16 |
| 19 | 22 | 23 | 28 | 22 | 11 | 9.1 | 19 | 16 | 48 | 12 | 12 | 14 |
| 20 | 20 | 50 | 27 | 21 | 33 | 9.6 | 15 | 16 | e75 | 12 | 11 | 12 |
| 21 | 16 | 62 | 25 | 21 | 29 | 9.5 | 15 | 16 | e30 | 11 | 10 | 12 |
| 22 | e15 | 59 | 36 | 22 | 15 | 8.8 | 13 | 19 | 23 | e13 | 10 | 10 |
| 23 | e194 | 79 | 36 | 24 | 12 | 9.3 | 12 | e274 | 19 | e16 | 13 | 20 |
| 24 | e194 | 49 | 34 | 22 | 11 | 11 | 20 | e124 | 18 | 13 | e11 | 26 |
| 25 | e112 | 34 | 31 | 22 | 11 | 12 | 25 | e196 | 17 | 13 | e11 | 19 |
| 26 | e55 | 28 | 101 | 20 | 10 | 9.7 | 15 | e115 | 16 | 13 | e10 | 16 |
| 27 | 110 | 27 | 104 | 20 | 10 | 9.4 | 13 | e66 | e17 | e15 | e11 | 13 |
| 28 | 101 | e195 | 61 | 21 | 9.5 | 9.0 | 254 | e91 | e19 | 12 | e22 | 25 |
| 29 | 58 | e194 | 45 | 64 | --- | 9.3 | 485 | e59 | e18 | 11 | e21 | 23 |
| 30 | 68 | 144 | 37 | 37 | --- | 10 | 170 | 43 | e19 | 11 | e14 | 14 |
| 31 | 48 | --- | 34 | 34 | --- | 11 | --- | 39 | --- | 11 | e13 | --- |
| TOTAL | 1771.6 | 1590 | 1268 | 823 | 431.5 | 305.3 | 1725.0 | 2200 | 699 | 478 | 392.6 | 1113.8 |
| MEAN | 57.1 | 53.0 | 40.9 | 26.5 | 15.4 | 9.85 | 57.5 | 71.0 | 23.3 | 15.4 | 12.7 | 37.1 |
| MAX | 194 | 195 | 104 | 64 | 38 | 13 | 485 | 354 | 75 | 29 | 45 | 220 |
| MIN | 8.6 | 20 | 23 | 20 | 9.5 | 8.8 | 9.1 | 16 | 15 | 11 | 9.0 | 9.8 |
| AC-FT | 3510 | 3150 | 2520 | 1630 | 856 | 606 | 3420 | 4360 | 1390 | 948 | 779 | 2210 |
| CFSM | 3.42 | 3.17 | 2.45 | 1.59 | .92 | .59 | 3.44 | 4.25 | 1.40 | .92 | .76 | 2.22 |
| IN. | 3.95 | 3.54 | 2.82 | 1.83 | .96 | .68 | 3.84 | 4.90 | 1.56 | 1.06 | .87 | 2.48 |

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1969 - 1993, BY WATER YEAR (WY)

| | 1968 | 1969 | 1970 | 1971 | 1972 | 1973 | 1974 | 1975 | 1976 | 1977 | 1978 | 1979 |
|------|------|------|------|------|------|------|------|------|------|------|------|------|
| MEAN | 96.8 | 58.9 | 30.4 | 21.2 | 14.2 | 15.9 | 28.9 | 51.0 | 20.5 | 17.0 | 22.2 | 53.4 |
| MAX | 392 | 205 | 108 | 83.4 | 30.9 | 59.9 | 80.2 | 179 | 78.6 | 104 | 152 | 149 |
| (WY) | 1971 | 1971 | 1971 | 1992 | 1971 | 1972 | 1980 | 1981 | 1979 | 1979 | 1979 | 1979 |
| MIN | 15.8 | 8.14 | 8.95 | 6.62 | 6.26 | 5.57 | 6.23 | 7.05 | 4.10 | 5.22 | 6.76 | 9.82 |
| (WY) | 1976 | 1974 | 1992 | 1973 | 1977 | 1977 | 1977 | 1973 | 1977 | 1974 | 1976 | 1992 |

| SUMMARY STATISTICS | FOR 1992 CALENDAR YEAR | FOR 1993 WATER YEAR | WATER YEARS 1969 - 1993 |
|--------------------------|------------------------|---------------------|-------------------------|
| ANNUAL TOTAL | 15451.2 | 12797.8 | |
| ANNUAL MEAN | 42.2 | 35.1 | 35.8 |
| HIGHEST ANNUAL MEAN | | | 79.3 |
| LOWEST ANNUAL MEAN | | | 13.2 |
| HIGHEST DAILY MEAN | 922 | 485 | 3870 |
| LOWEST DAILY MEAN | 7.2 | 8.6 | 3.0 |
| ANNUAL SEVEN-DAY MINIMUM | 7.9 | 9.2 | 3.4 |
| INSTANTANEOUS PEAK FLOW | | 2430 | 17800 |
| INSTANTANEOUS PEAK STAGE | | 12.58 | 21.90 |
| INSTANTANEOUS LOW FLOW | | 8.4 | 2.8 |
| ANNUAL RUNOFF (AC-FT) | 30650 | 25380 | 25920 |
| ANNUAL RUNOFF (CFSM) | 2.53 | 2.10 | 2.14 |
| ANNUAL RUNOFF (INCHES) | 34.42 | 28.51 | 29.10 |
| 10 PERCENT EXCEEDS | 82 | 68 | 66 |
| 50 PERCENT EXCEEDS | 20 | 21 | 13 |
| 90 PERCENT EXCEEDS | 8.6 | 9.7 | 6.0 |

e Estimated

RIO GRANDE DE MANATI BASIN

50035000 RIO GRANDE DE MANATI AT CIALES, PR

LOCATION.--Lat 18°19'26", long 66°27'36", Hydrologic Unit 21010001, on left bank, 1.6 mi (2.6 km) upstream from Hwy 145 bridge, 0.8 mi (1.3 km) downstream from Quebrada Saliente, 0.9 mi (1.4 km) upstream from Quebrada Cojo Vales, and 1.2 mi (1.9 km) southeast of Ciales.

DRAINAGE AREA.--128 mi² (332 km²), excludes 6.0 mi² (15.5 km²), the runoff from which is diverted through El Guineo and de Matrullas reservoirs.

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--September 1946 to September 1953, May 1956 to December 1957 (unpublished, available in files of Caribbean District Office and in the National Water Data Storage and Retrieval System, Washington, D.C.); February 1959 to September 1960 (monthly discharge measurements only); October 1960 to current year. Equivalent record from January 1971 to December 1972 published as 50035200 Río Grande de Manatí at Highway 145 at Ciales at site 1.6 mi (2.6 km) downstream, drainage area 132 mi² (342 km²).

GAGE.--Water-stage recorder. Elevation of gage is 140 ft (43 m), from topographic map. Prior to Apr. 1, 1962, staff gage, read twice daily, at site 100 ft (30 m) upstream at same datum. January 1971 to December 1972 at site 1.6 mi (2.6 km) downstream at different datum.

REMARKS.--Records fair except those for estimated daily discharges, which are poor. Gage-height and precipitation satellite telemetry at station.

EXTREMES OUTSIDE PERIOD OF RECORD.--Approximate gage heights of major floods, pointed out by local residents are as follows: August 1899, 50 ft (15 m), September 1928, 36 ft (11 m), and September 1932, 34 ft (10 m) at site 1.6 mi (2.6 km) upstream.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993
DAILY MEAN VALUES

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|-------|-------|-------|-------|-------|------|------|-------|-------|-------|------|------|-------|
| 1 | 241 | 367 | 326 | 183 | 595 | 82 | 61 | 1790 | 260 | 115 | 91 | 97 |
| 2 | 224 | 345 | 235 | 166 | 221 | 83 | 59 | 3030 | 230 | 109 | 88 | 85 |
| 3 | 140 | 253 | 180 | 166 | 186 | 83 | 58 | 1520 | 202 | 109 | 86 | 80 |
| 4 | 330 | 501 | 158 | 181 | 169 | 79 | 57 | 602 | 185 | 109 | 84 | 461 |
| 5 | 241 | 372 | 141 | 157 | 151 | 78 | 57 | 401 | 172 | 105 | 84 | 382 |
| 6 | 515 | 233 | 127 | 157 | 136 | 78 | 56 | 363 | 169 | 101 | 84 | 659 |
| 7 | 434 | 183 | 119 | 278 | 125 | 75 | 54 | 323 | 169 | 99 | 84 | 471 |
| 8 | 226 | 158 | 107 | 338 | 116 | 72 | 159 | 476 | 165 | 103 | 84 | 254 |
| 9 | 215 | 142 | 104 | 196 | 112 | 72 | 304 | 1500 | 172 | 97 | 84 | 132 |
| 10 | 150 | 136 | 105 | 165 | 109 | 79 | 293 | 597 | 170 | 92 | 84 | 104 |
| 11 | 209 | 128 | 99 | 148 | 103 | 72 | 1300 | 450 | 154 | 200 | 84 | 114 |
| 12 | 136 | 122 | 98 | 145 | 101 | 69 | 804 | 367 | 141 | 307 | 84 | 92 |
| 13 | 106 | 253 | 142 | 141 | 101 | 69 | 1040 | 305 | 143 | 132 | 84 | 85 |
| 14 | 100 | 166 | 374 | 133 | 97 | 68 | 1510 | 353 | 145 | 157 | 81 | 85 |
| 15 | 96 | 167 | 747 | 128 | 94 | 64 | 1110 | 326 | 141 | 123 | 81 | 87 |
| 16 | 86 | 216 | 253 | 121 | 120 | 71 | 896 | 262 | 152 | 106 | 336 | 119 |
| 17 | 358 | 263 | 194 | 121 | 142 | 95 | 532 | 246 | 132 | 101 | 250 | 394 |
| 18 | 480 | 161 | 183 | 117 | 103 | 77 | 421 | 208 | 125 | 95 | 113 | 515 |
| 19 | 385 | 150 | 158 | 115 | 95 | 68 | 255 | 193 | 217 | 93 | 97 | 584 |
| 20 | 199 | 250 | 141 | 113 | 174 | 68 | 294 | 182 | 423 | 94 | 87 | 313 |
| 21 | 133 | 265 | 133 | 111 | 277 | 97 | 385 | 183 | 207 | 92 | 84 | 163 |
| 22 | 134 | 233 | 194 | 110 | 156 | 62 | 316 | 217 | 161 | 100 | 83 | 127 |
| 23 | 491 | 362 | 231 | 144 | 114 | 60 | 185 | 1020 | 152 | 217 | 105 | 362 |
| 24 | 636 | 212 | 193 | 122 | 100 | 69 | 146 | 695 | 138 | 181 | 89 | 461 |
| 25 | 650 | 167 | 204 | 115 | 94 | 69 | 179 | 911 | 126 | 174 | 82 | 153 |
| 26 | 315 | 136 | 1340 | 107 | 91 | 66 | 140 | 722 | 121 | 121 | 81 | 118 |
| 27 | 270 | 284 | 860 | 100 | 87 | 61 | 124 | 451 | 114 | 124 | 81 | 101 |
| 28 | 332 | 1140 | 449 | 103 | 84 | 64 | 434 | 535 | 113 | 104 | 93 | 222 |
| 29 | 218 | 715 | 330 | 453 | --- | 64 | 3710 | 440 | 118 | 93 | 175 | 234 |
| 30 | 398 | 664 | 269 | 285 | --- | 68 | 1780 | 326 | 135 | 91 | 225 | 123 |
| 31 | 391 | --- | 216 | 309 | --- | 83 | --- | 351 | --- | 91 | 144 | --- |
| TOTAL | 8839 | 8744 | 8410 | 5228 | 4053 | 2265 | 16719 | 19345 | 5052 | 3835 | 3392 | 7177 |
| MEAN | 285 | 291 | 271 | 169 | 145 | 73.1 | 557 | 624 | 168 | 124 | 109 | 239 |
| MAX | 650 | 1140 | 1340 | 453 | 595 | 97 | 3710 | 3030 | 423 | 307 | 336 | 659 |
| MIN | 86 | 122 | 98 | 100 | 84 | 60 | 54 | 182 | 113 | 91 | 81 | 80 |
| AC-FT | 17530 | 17340 | 16680 | 10370 | 8040 | 4490 | 33160 | 38370 | 10020 | 7610 | 6730 | 14240 |
| CFSM | 2.23 | 2.28 | 2.12 | 1.32 | 1.13 | .57 | 4.35 | 4.88 | 1.32 | .97 | .85 | 1.87 |
| IN. | 2.57 | 2.54 | 2.44 | 1.52 | 1.18 | .66 | 4.86 | 5.62 | 1.47 | 1.11 | .99 | 2.09 |

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1961 - 1993, BY WATER YEAR (WY)

| | MEAN | 476 | 379 | 276 | 174 | 138 | 148 | 291 | 477 | 162 | 110 | 153 | 285 |
|------|------|------|------|------|------|------|------|------|------|------|------|------|-----|
| MAX | 2422 | 1006 | 1296 | 479 | 424 | 477 | 1174 | 2293 | 458 | 438 | 1212 | 994 | |
| (WY) | 1971 | 1971 | 1966 | 1992 | 1969 | 1969 | 1969 | 1985 | 1979 | 1979 | 1979 | 1979 | |
| MIN | 97.8 | 67.6 | 64.5 | 64.1 | 47.9 | 36.5 | 28.5 | 71.4 | 40.2 | 40.2 | 33.6 | 77.7 | |
| (WY) | 1987 | 1974 | 1992 | 1984 | 1984 | 1984 | 1984 | 1989 | 1977 | 1974 | 1984 | 1977 | |

SUMMARY STATISTICS

FOR 1992 CALENDAR YEAR

FOR 1993 WATER YEAR

WATER YEARS 1961 - 1993

| | | | |
|--------------------------|--------|--------|--------|
| ANNUAL TOTAL | 97624 | 93059 | |
| ANNUAL MEAN | 267 | 255 | 256 |
| HIGHEST ANNUAL MEAN | | | 520 |
| LOWEST ANNUAL MEAN | | | 118 |
| HIGHEST DAILY MEAN | 5240 | 3710 | 42700 |
| LOWEST DAILY MEAN | 45 | 54 | 5.0 |
| ANNUAL SEVEN-DAY MINIMUM | 57 | 57 | 22 |
| INSTANTANEOUS PEAK FLOW | | 17800 | 125000 |
| INSTANTANEOUS PEAK STAGE | | 10.15 | 24.00 |
| INSTANTANEOUS LOW FLOW | | 54 | 20 |
| ANNUAL RUNOFF (AC-FT) | 193600 | 184600 | 185800 |
| ANNUAL RUNOFF (CFSM) | 2.08 | 1.99 | 2.00 |
| ANNUAL RUNOFF (INCHES) | 28.37 | 27.05 | 27.22 |
| 10 PERCENT EXCEEDS | 449 | 478 | 460 |
| 50 PERCENT EXCEEDS | 130 | 148 | 118 |
| 90 PERCENT EXCEEDS | 69 | 81 | 55 |

e Estimated

RIO GRANDE DE MANATI BASIN

50035500 RIO GRANDE DE MANATI AT HIGHWAY 149 AT CIALES, RP

WATER-QUALITY RECORDS

LOCATION.--Lat 18°20'46", long 66°28'06", at bridge on Highway 149, about 800 ft (244 m) upstream from confluence with Río Ciales, 0.5 mi (0.8 km) north of Ciales plaza.

DRAINAGE AREA.--136 mi² (352 km²) this excludes the 6 mi² (15.5 km²) upstream from Lago El Guineo and Lago de Matrullas, flow from which is diverted to Río Jacaguas.

PERIOD OF RECORD.--Water years 1979 to current year.

WATER-QUALITY DATA, WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993

| DATE | TIME | DIS-CHARGE, INST. CUBIC FEET PER SECOND | SPE-CIFIC CON-DUCT-ANCE (US/CM) | PH WATER WHOLE FIELD (STAND-ARD UNITS) | TEMPER-ATURE WATER (DEG C) | TUR-BID-ITY (NTU) | OXYGEN, DIS-SOLVED (MG/L) | OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION) | OXYGEN DEMAND, CHEM-ICAL (HIGH LEVEL) (MG/L) | COLI-FORM, FECAL, 0.45 UM-MF (COLS./100 ML) | STREP-TOCOCCI, FECAL, (COLS. PER 100 ML) |
|-----------|------|---|---------------------------------|--|----------------------------|-------------------|---------------------------|---|--|---|--|
| OCT 1992 | | | | | | | | | | | |
| 21... | 1155 | 102 | 223 | 7.6 | 26.5 | 5.1 | 8.4 | 100 | 14 | K1700 | 260 |
| DEC 22... | 1130 | 100 | 262 | 8.0 | 23.1 | 29 | 8.1 | 92 | 11 | 3900 | 2900 |
| MAR 1993 | | | | | | | | | | | |
| 04... | 1040 | 133 | 224 | 8.3 | 24.0 | 2.9 | 7.4 | 88 | <10 | 50 | 190 |
| APR 29... | 1400 | 1980 | 194 | 7.2 | 26.5 | 162 | 10.0 | 124 | 13 | 57000 | 6500 |
| JUN 23... | 1215 | 136 | 223 | 8.2 | 28.5 | 5.6 | 8.3 | 106 | 14 | 4400 | K930 |
| AUG 20... | 1300 | 209 | 269 | 8.1 | 27.0 | 14 | 7.2 | 90 | <10 | 3100 | 870 |

| DATE | HARD-NESS TOTAL (MG/L AS CaCO3) | HARD-NESS NONCARB WH WAT TOT FLD MG/L AS CaCO3 | CALCIUM DIS-SOLVED (MG/L AS Ca) | MAGNE-SIUM, DIS-SOLVED (MG/L AS Mg) | SODIUM, DIS-SOLVED (MG/L AS Na) | SODIUM AD-SORP-TION RATIO | POTAS-SIUM, DIS-SOLVED (MG/L AS K) | ALKA-LINITY WAT WH TOT FET FIELD MG/L AS CaCO3 | SULFIDE TOTAL (MG/L AS S) | SULFATE DIS-SOLVED (MG/L AS SO4) | CHLO-RIDE, DIS-SOLVED (MG/L AS Cl) |
|-----------|---------------------------------|--|---------------------------------|-------------------------------------|---------------------------------|---------------------------|------------------------------------|--|---------------------------|----------------------------------|------------------------------------|
| OCT 1992 | | | | | | | | | | | |
| 21... | 85 | 1 | 21 | 7.9 | 10 | 0.5 | 2.4 | 82 | <0.5 | 10 | 11 |
| DEC 22... | -- | -- | -- | -- | -- | -- | -- | 93 | -- | -- | -- |
| MAR 1993 | | | | | | | | | | | |
| 04... | -- | -- | -- | -- | -- | -- | -- | 110 | -- | -- | -- |
| APR 29... | 130 | 5 | 24 | 16 | 74 | 3 | 4.5 | 64 | <0.5 | -- | -- |
| JUN 23... | -- | -- | -- | -- | -- | -- | -- | 120 | -- | -- | -- |
| AUG 20... | 92 | 37 | 22 | 8.9 | 12 | 0.5 | 2.5 | 100 | -- | 9.5 | 13 |

| DATE | FLUO-RIDE, DIS-SOLVED (MG/L AS F) | SILICA, DIS-SOLVED (MG/L AS SiO2) | SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L) | SOLIDS, DIS-SOLVED (TONS PER DAY) | RESIDUE TOTAL AT 105 DEG. C, SUS-PENDED (MG/L) | NITRO-GEN, NITRATE TOTAL (MG/L AS N) | NITRO-GEN, NITRITE TOTAL (MG/L AS N) | NITRO-GEN, NO2+NO3 TOTAL (MG/L AS N) | NITRO-GEN, AMMONIA TOTAL (MG/L AS N) | NITRO-GEN, ORGANIC TOTAL (MG/L AS N) |
|-----------|-----------------------------------|-----------------------------------|---|-----------------------------------|--|--------------------------------------|--------------------------------------|--------------------------------------|--------------------------------------|--------------------------------------|
| OCT 1992 | | | | | | | | | | |
| 21... | 0.10 | 24 | 136 | 37.3 | 23 | 0.720 | 0.020 | 0.740 | 0.040 | 0.16 |
| DEC 22... | -- | -- | -- | -- | 9 | 0.430 | 0.070 | 0.500 | 0.030 | 0.37 |
| MAR 1993 | | | | | | | | | | |
| 04... | -- | -- | -- | -- | 2 | 0.290 | 0.010 | 0.300 | 0.020 | 0.68 |
| APR 29... | 0.10 | 27 | 227 | 1214 | <1 | 0.390 | 0.010 | 0.400 | 0.030 | 0.27 |
| JUN 23... | -- | -- | -- | -- | 18 | 0.590 | 0.010 | 0.600 | 0.020 | 0.18 |
| AUG 20... | 0.10 | 27 | 155 | 87.4 | 16 | 0.290 | 0.010 | 0.300 | 0.030 | 0.37 |

K = non-ideal count

WATER-QUALITY DATA, WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993

[illegible]

RIO GRANDE DE MANATI BASIN

50035950 RIO CIALITOS AT HIGHWAY 649 AT CIALES, PR

WATER-QUALITY RECORDS

LOCATION.--Lat 18°20'18", long 66°28'28", 100 ft (30 m) upstream from bridge on Highway 649, 0.7 mi (1.1 km) upstream from mouth, and about 0.4 mi (0.6 km) west of Ciales plaza.

DRAINAGE AREA.--17.0 mi² (44.0 km²).

PERIOD OF RECORD.--Water years 1969-71, 1974 to current year.

WATER-QUALITY DATA

| DATE | TIME | DIS-CHARGE, INST. CUBIC FEET PER SECOND | SPE-CIFIC CON-DUCT-ANCE (US/CM) | PH WATER WHOLE FIELD (STAND-ARD UNITS) | TEMPER-ATURE WATER (DEG C) | TUR-BID-ITY (NTU) | OXYGEN, DIS-SOLVED (MG/L) | OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION) | OXYGEN DEMAND, CHEM-ICAL (HIGH LEVEL) (MG/L) | COLI-FORM, FECAL, 0.45 UM-MF (COLS./100 ML) | STREP-TOCOCCI, FECAL, (COLS. PER 100 ML) |
|-----------|------|---|---------------------------------|--|----------------------------|-------------------|---------------------------|---|--|---|--|
| OCT 1992 | | | | | | | | | | | |
| 21... | 1340 | 5.7 | 235 | 7.1 | 25.5 | 13 | 8.3 | 100 | 70 | 3600 | 2200 |
| DEC 21... | 1300 | 12.2 | 312 | 7.9 | 23.2 | 2.4 | 7.8 | 95 | <10 | 4500 | 3500 |
| MAR 1993 | | | | | | | | | | | |
| 04... | 1145 | 5.0 | 420 | 8.3 | 26.5 | 11 | 8.5 | 86 | <10 | 540 | K870 |
| MAY 03... | 1515 | 72 | 318 | 7.6 | 22.0 | 15 | 8.0 | 91 | 16 | 460 | 330 |
| JUN 23... | 1350 | 3.6 | 213 | 7.7 | 26.5 | 12 | 8.2 | 81 | <10 | K900 | 250 |
| AUG 20... | 1405 | 4.0 | 194 | 7.2 | 23.5 | 82 | 6.0 | 70 | 22 | K60000 | 6800 |

| DATE | HARD-NESS TOTAL (MG/L AS CACO3) | HARD-NESS NONCARB WH WAT TOT FLD (MG/L AS CACO3) | CALCIUM DIS-SOLVED (MG/L AS CA) | MAGNE-SIUM, DIS-SOLVED (MG/L AS MG) | SODIUM, DIS-SOLVED (MG/L AS NA) | SODIUM AD-SORP-TION RATIO | POTAS-SIUM, DIS-SOLVED (MG/L AS K) | ALKA-LINITY WAT WH TOT FET (MG/L AS CACO3) | SULFIDE TOTAL (MG/L AS S) | SULFATE DIS-SOLVED (MG/L AS SO4) | CHLO-RIDE, DIS-SOLVED (MG/L AS CL) |
|-----------|---------------------------------|--|---------------------------------|-------------------------------------|---------------------------------|---------------------------|------------------------------------|--|---------------------------|----------------------------------|------------------------------------|
| OCT 1992 | | | | | | | | | | | |
| 21... | 97 | 1 | 28 | 6.6 | 10 | 0.4 | 3.3 | 96 | <0.5 | 6.9 | 10 |
| DEC 21... | -- | -- | -- | -- | -- | -- | -- | 70 | -- | -- | -- |
| MAR 1993 | | | | | | | | | | | |
| 04... | -- | -- | -- | -- | -- | -- | -- | 100 | -- | -- | -- |
| MAY 03... | 64 | 0 | 19 | 4.1 | 8.6 | 0.5 | 1.8 | 120 | <0.5 | 7.1 | 9.5 |
| JUN 23... | -- | -- | -- | -- | -- | -- | -- | 98 | -- | -- | -- |
| AUG 20... | 95 | 2 | 27 | 6.8 | 12 | 0.5 | 2.0 | 81 | -- | 6.5 | 11 |

| DATE | FLUO-RIDE, DIS-SOLVED (MG/L AS F) | SILICA, DIS-SOLVED (MG/L AS SIO2) | SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L) | SOLIDS, DIS-SOLVED (TONS PER DAY) | RESIDUE TOTAL AT 105 DEG. C, SUS-PENDED (MG/L) | NITRO-GEN, NITRATE TOTAL (MG/L AS N) | NITRO-GEN, NITRITE TOTAL (MG/L AS N) | NITRO-GEN, NO2+NO3 TOTAL (MG/L AS N) | NITRO-GEN, AMMONIA TOTAL (MG/L AS N) | NITRO-GEN, ORGANIC TOTAL (MG/L AS N) |
|-----------|-----------------------------------|-----------------------------------|---|-----------------------------------|--|--------------------------------------|--------------------------------------|--------------------------------------|--------------------------------------|--------------------------------------|
| OCT 1992 | | | | | | | | | | |
| 21... | 0.10 | 29 | 151 | 2.33 | -- | 0.680 | <0.010 | 0.680 | 0.020 | 0.28 |
| DEC 21... | -- | -- | -- | -- | 15 | 1.49 | 0.010 | 1.50 | 0.010 | 0.19 |
| MAR 1993 | | | | | | | | | | |
| 04... | -- | -- | -- | -- | <1 | 1.59 | 0.010 | 1.60 | 0.020 | -- |
| MAY 03... | 0.10 | 24 | 146 | 28.5 | 24 | 1.18 | 0.020 | 1.20 | 0.040 | 0.16 |
| JUN 23... | -- | -- | -- | -- | 9 | 0.990 | 0.010 | 1.00 | 0.010 | -- |
| AUG 20... | <0.10 | 30 | 155 | 1.67 | 8 | 0.820 | 0.020 | 0.840 | 0.030 | 0.67 |

K = non-ideal count

WATER-QUALITY DATA, WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993

[illegible]

RIO GRANDE DE MANATI BASIN

50038100 RIO GRANDE DE MANATI AT HIGHWAY 2 NEAR MANATI, PR

LOCATION.--Lat 18°25'52", long 66°31'37", Hydrologic Unit 21010002, at bridge on Highway 2, and 2.3 mi (3.7 km) west of Manatí.

DRAINAGE AREA.--197 mi² (510 km²), approximately, of which about 38 mi² (98 km²) is partly or entirely noncontributing, excludes 6.0 mi² (15.5 km²) upstream from Lago El Guineo and Lago de Matrullas.

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--1963-68 (annual maximum discharge only), February 1970 to current year.

REVISED RECORDS.--WRD PR-86-1: 1970-71 (M), 1975, 1979, 1982-85 (P).

GAGE.--Water-stage recorder. Elevation of gage is 14 ft (4 m), from topographic map. Prior to 1968 crest-stage gage at same site and datum 3.57 ft (1.09 m) lower.

REMARKS.--Records fair except those for estimated daily discharges, which are poor. Gage-height and precipitation satellite telemetry at station.

EXTREMES OUTSIDE PERIOD OF RECORD.--Approximate gage heights to gage datum of major floods, pointed out by local residents, are as follows: Sept. 13, 1928, 36.6 ft (11.16 m), Sept. 27, 1932, 36.3 ft (11.06 m), and Aug. 4, 1945, 34.3 ft (10.45 m).

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993

| DAILY MEAN VALUES | | | | | | | | | | | | |
|-------------------|-------|-------|-------|-------|-------|------|-------|-------|-------|-------|------|-------|
| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
| 1 | 268 | 457 | 513 | 329 | 841 | 142 | 107 | 1960 | 386 | 184 | 138 | 159 |
| 2 | 220 | 453 | 364 | 293 | 325 | 152 | 91 | 4830 | 348 | 173 | 136 | 138 |
| 3 | 308 | 285 | 291 | 275 | 259 | 151 | 88 | 4270 | 319 | 178 | 133 | 128 |
| 4 | 160 | 662 | 255 | 295 | 242 | 140 | 85 | 1290 | 295 | 182 | 128 | 177 |
| 5 | 585 | 504 | 231 | 264 | 217 | 134 | 84 | 783 | 278 | 176 | 128 | 778 |
| 6 | 1310 | 306 | 215 | 265 | 200 | 132 | 84 | 779 | 269 | 170 | 130 | 522 |
| 7 | 909 | 236 | 205 | 321 | 193 | 132 | 81 | 859 | 263 | 168 | 129 | 1040 |
| 8 | 326 | 200 | 194 | 572 | 186 | 129 | 96 | 682 | 253 | 176 | 124 | 409 |
| 9 | 283 | 176 | 185 | 316 | 180 | 131 | 378 | 2840 | 263 | 171 | 122 | 225 |
| 10 | 233 | 165 | 180 | 268 | 174 | 138 | 351 | 1210 | 254 | 164 | 124 | 177 |
| 11 | 257 | 148 | 174 | 246 | 171 | 130 | e954 | 827 | 243 | 183 | 121 | 180 |
| 12 | 211 | 136 | 168 | 236 | 167 | 121 | e1640 | 674 | 227 | 389 | 124 | 161 |
| 13 | 176 | 190 | 197 | 229 | 169 | 120 | 1190 | 565 | 222 | 219 | 119 | 142 |
| 14 | 161 | 266 | 907 | 221 | 165 | 117 | 2130 | 544 | 220 | 208 | 116 | 132 |
| 15 | 239 | 178 | 1860 | 214 | 159 | 114 | 1860 | 583 | 212 | 198 | 115 | 131 |
| 16 | 200 | 216 | 565 | 206 | 155 | 127 | 1640 | 522 | 216 | 175 | 208 | 200 |
| 17 | 351 | 362 | 360 | 200 | 211 | 160 | 840 | 475 | 208 | 167 | 460 | 448 |
| 18 | 609 | 207 | 311 | 195 | 174 | 135 | 715 | 424 | 193 | 162 | 186 | 727 |
| 19 | 800 | 215 | 268 | 189 | 161 | 122 | 451 | 419 | 220 | 156 | 155 | 828 |
| 20 | 315 | 243 | 243 | 185 | 170 | 113 | 408 | 392 | 447 | 154 | 144 | 674 |
| 21 | 236 | 430 | 225 | 183 | 400 | 140 | 667 | 402 | 275 | 152 | 135 | 246 |
| 22 | 208 | 263 | 250 | 187 | 244 | 120 | 516 | 428 | 222 | 156 | 131 | 188 |
| 23 | 385 | 494 | 346 | 223 | 195 | 111 | 313 | 1080 | 210 | 247 | 145 | 190 |
| 24 | 954 | 308 | 296 | 207 | 173 | 124 | 252 | 1800 | 195 | 190 | 153 | 981 |
| 25 | 987 | 241 | 344 | 189 | 161 | 115 | 259 | 1360 | 182 | 228 | 130 | 325 |
| 26 | 493 | 196 | 1260 | 183 | 155 | 109 | 234 | 1460 | 178 | 175 | 125 | 224 |
| 27 | 508 | 263 | 2050 | 176 | 153 | 100 | 233 | 795 | 175 | 179 | 123 | 189 |
| 28 | 507 | 1530 | 811 | 183 | 147 | 109 | 386 | 656 | 174 | 162 | 128 | 213 |
| 29 | 358 | 1090 | 593 | 411 | --- | 101 | 5210 | 845 | 181 | 149 | 161 | 403 |
| 30 | 427 | 1230 | 471 | 375 | --- | 119 | 9770 | 455 | 189 | 144 | 361 | 253 |
| 31 | 512 | --- | 381 | 319 | --- | 140 | --- | 501 | --- | 141 | 217 | --- |
| TOTAL | 13496 | 11650 | 14713 | 7955 | 6147 | 3928 | 31113 | 34710 | 7317 | 5676 | 4849 | 10588 |
| MEAN | 435 | 388 | 475 | 257 | 220 | 127 | 1037 | 1120 | 244 | 183 | 156 | 353 |
| MAX | 1310 | 1530 | 2050 | 572 | 841 | 160 | 9770 | 4830 | 447 | 389 | 460 | 1040 |
| MIN | 160 | 136 | 168 | 176 | 147 | 100 | 81 | 392 | 174 | 141 | 115 | 128 |
| AC-FT | 26770 | 23110 | 29180 | 15780 | 12190 | 7790 | 61710 | 68850 | 14510 | 11260 | 9620 | 21000 |
| CFSM | 2.21 | 1.97 | 2.41 | 1.30 | 1.11 | .64 | 5.26 | 5.68 | 1.24 | .93 | .79 | 1.79 |
| IN. | 2.55 | 2.20 | 2.78 | 1.50 | 1.16 | .74 | 5.88 | 6.55 | 1.38 | 1.07 | .92 | 2.00 |

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1970 - 1993, BY WATER YEAR (WY)

| | MEAN | 801 | 580 | 392 | 260 | 206 | 195 | 392 | 704 | 251 | 165 | 226 | 435 |
|------|------|------|------|------|------|------|------|------|------|------|------|------|-----|
| MAX | 2958 | 1803 | 1498 | 771 | 444 | 521 | 1037 | 3178 | 747 | 577 | 1644 | 1510 | |
| (WY) | 1971 | 1971 | 1971 | 1992 | 1988 | 1972 | 1993 | 1985 | 1987 | 1979 | 1979 | 1979 | |
| MIN | 161 | 123 | 101 | 105 | 87.6 | 68.4 | 60.1 | 93.7 | 78.7 | 75.2 | 67.9 | 127 | |
| (WY) | 1987 | 1974 | 1992 | 1984 | 1984 | 1984 | 1984 | 1989 | 1977 | 1984 | 1984 | 1983 | |

SUMMARY STATISTICS FOR 1992 CALENDAR YEAR FOR 1993 WATER YEAR WATER YEARS 1970 - 1993

| | ANNUAL TOTAL | 140264 | 152142 | |
|--------------------------|--------------|--------|--------|--------|
| ANNUAL MEAN | 383 | 417 | 383 | |
| HIGHEST ANNUAL MEAN | | | 756 | 1971 |
| LOWEST ANNUAL MEAN | | | 172 | 1974 |
| HIGHEST DAILY MEAN | 8410 | Jan 6 | 9770 | Apr 30 |
| LOWEST DAILY MEAN | 69 | Sep 16 | 81 | Apr 7 |
| ANNUAL SEVEN-DAY MINIMUM | 80 | Sep 13 | 87 | Apr 2 |
| INSTANTANEOUS PEAK FLOW | | | 30200 | Apr 29 |
| INSTANTANEOUS PEAK STAGE | | | 30.84 | Apr 29 |
| INSTANTANEOUS LOW FLOW | | | 79 | Apr 8 |
| ANNUAL RUNOFF (AC-FT) | 278200 | | 301800 | 277100 |
| ANNUAL RUNOFF (CFSM) | 1.95 | | 2.12 | 1.94 |
| ANNUAL RUNOFF (INCHES) | 26.49 | | 28.73 | 26.38 |
| 10 PERCENT EXCEEDS | 675 | | 827 | 674 |
| 50 PERCENT EXCEEDS | 180 | | 219 | 175 |
| 90 PERCENT EXCEEDS | 92 | | 128 | 92 |

RIO GRANDE DE MANATI BASIN

50038100 RIO GRANDE DE MANATI AT HIGHWAY 2 NEAR MANATI, PR--Continued
(National stream-quality accounting network station)

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Water years 1969 to current year.

WATER-QUALITY DATA, WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993

| DATE | TIME | DIS-CHARGE, INST. CUBIC FEET PER SECOND | SPE-CIFIC CON-DUCT- ANCE (US/CM) | PH WATER WHOLE FIELD (STAND- ARD UNITS) | TEMPER- ATURE WATER (DEG C) | TUR- BID- ITY (NTU) | OXYGEN, DIS- SOLVED (MG/L) | OXYGEN, DIS- SOLVED (PER- CENT SATUR- ATION) | COLI- FORM, FECAL, 0.7 UM-MF (COLS./ 100 ML) | STREP- TOCOCCI FECAL, KF AGAR (COLS. PER 100 ML) | HARD- NESS TOTAL (MG/L AS CACO3) |
|----------|------|--|---|---|--------------------------------------|------------------------------|-------------------------------------|--|--|--|---|
| OCT 1992 | | | | | | | | | | | |
| 23... | 1125 | 505 | 256 | 7.2 | 28.5 | 160 | 5.4 | 68 | K680 | K2000 | 110 |
| DEC | | | | | | | | | | | |
| 21... | 0915 | 228 | 286 | 6.5 | 23.0 | 6.0 | 5.0 | 57 | 4200 | 4900 | 120 |
| FEB 1993 | | | | | | | | | | | |
| 22... | 1025 | 251 | 242 | 7.4 | 22.5 | 20 | 4.4 | 55 | K18000 | 2200 | 100 |
| APR | | | | | | | | | | | |
| 30... | 1025 | 560 | 200 | 6.8 | 22.7 | 240 | 8.0 | 91 | K60000 | K120000 | 70 |
| JUN | | | | | | | | | | | |
| 25... | 0950 | 183 | 285 | 7.2 | 29.0 | 1.7 | 5.7 | 73 | 27000 | 370 | 120 |
| SEP | | | | | | | | | | | |
| 23... | 1210 | 168 | 256 | 7.2 | 28.1 | 43 | 6.7 | 86 | K7600 | 400 | 110 |

| DATE | HARD- NESS NONCARB WH WAT TOT FLD MG/L AS CACO3 | CALCIUM DIS- SOLVED (MG/L AS CA) | MAGNE- SIUM, DIS- SOLVED (MG/L AS MG) | SODIUM, DIS- SOLVED (MG/L AS NA) | SODIUM AD- SORP- TION RATIO | POTAS- SIUM, DIS- SOLVED (MG/L AS K) | ALKA- LITY WAT WH TOT FET MG/L AS CACO3 | SULFATE DIS- SOLVED (MG/L AS SO4) | CHLO- RIDE, DIS- SOLVED (MG/L AS CL) | FLUO- RIDE, DIS- SOLVED (MG/L AS F) | SILICA, DIS- SOLVED (MG/L AS SIO2) |
|----------|---|--|--|--|---|---|--|---|---|--|---|
| OCT 1992 | | | | | | | | | | | |
| 23... | 91 | 31 | 7.0 | 10 | 0.4 | 2.3 | 140 | 9.1 | 11 | 0.10 | 21 |
| DEC | | | | | | | | | | | |
| 21... | 130 | 36 | 7.1 | 11 | 0.4 | 2.4 | 120 | 8.8 | 13 | <0.10 | 22 |
| FEB 1993 | | | | | | | | | | | |
| 22... | 120 | 29 | 6.9 | 10 | 0.4 | 2.1 | 96 | 8.1 | 12 | <0.10 | 21 |
| APR | | | | | | | | | | | |
| 30... | 100 | 22 | 3.7 | 7.2 | 0.4 | 3.2 | 79 | 8.6 | 10 | 0.10 | 15 |
| JUN | | | | | | | | | | | |
| 25... | 130 | 36 | 7.3 | 11 | 0.4 | 1.9 | 120 | 8.0 | 12 | 0.10 | 21 |
| SEP | | | | | | | | | | | |
| 23... | 88 | 33 | 7.3 | 10 | 0.4 | 2.2 | 110 | 9.7 | 11 | 0.10 | 21 |

| DATE | SOLIDS, RESIDUE AT 180 DEG. C DIS- SOLVED (MG/L) | SOLIDS, SUM OF CONSTITUENTS, DIS- SOLVED (MG/L) | SOLIDS, DIS- SOLVED (TONS PER DAY) | NITRO- GEN, NO2+NO3 DIS- SOLVED (MG/L AS N) | NITRO- GEN, AMMONIA DIS- SOLVED (MG/L AS N) | NITRO- GEN, AMMONIA DIS- SOLVED (MG/L AS NH4) | NITRO- GEN,AM- MONIA + ORGANIC TOTAL (MG/L AS N) | PHOS- PHORUS TOTAL (MG/L AS P) | PHOS- PHORUS DIS- SOLVED (MG/L AS P) | PHOS- PHORUS ORTHO, DIS- SOLVED (MG/L AS P) | PHOS- PHATE, ORTHO, DIS- SOLVED (MG/L AS PO4) |
|----------|--|--|---|---|---|---|--|--|---|---|---|
| OCT 1992 | | | | | | | | | | | |
| 23... | 157 | 156 | 213 | 0.880 | 0.360 | 0.46 | 0.50 | 0.240 | 0.060 | 0.060 | 0.18 |
| DEC | | | | | | | | | | | |
| 21... | 184 | 170 | 105 | 0.800 | 0.080 | 0.10 | 0.40 | 0.260 | 0.80 | 0.040 | 0.09 |
| FEB 1993 | | | | | | | | | | | |
| 22... | 157 | 152 | 103 | 0.950 | 0.060 | 0.08 | 0.40 | 0.130 | 0.070 | 0.090 | 0.28 |
| APR | | | | | | | | | | | |
| 30... | 140 | 112 | 169 | 0.960 | 0.530 | 0.68 | 2.2 | 0.300 | 0.230 | 0.210 | 0.64 |
| JUN | | | | | | | | | | | |
| 25... | 174 | 173 | 85 | 0.720 | 0.050 | 0.06 | 0.40 | 0.120 | 0.080 | 0.060 | 0.18 |
| SEP | | | | | | | | | | | |
| 23... | 158 | 162 | 73 | 1.00 | 0.080 | 0.10 | -- | -- | 0.050 | 0.060 | 0.18 |

K = non-ideal count

RIO GRANDE DE MANATI BASIN

50038100 RIO GRANDE DE MANATI AT HIGHWAY 2 NEAR MANATI, PR--Continued
(National stream-quality accounting network station)

| DATE | ALUM- INUM, DIS- SOLVED (UG/L AS AL) | ARSENIC DIS- SOLVED (UG/L AS AS) | BARIUM, DIS- SOLVED (UG/L AS BA) | BERYL- LIUM, DIS- SOLVED (UG/L AS BE) | CADMIUM DIS- SOLVED (UG/L AS CD) | CHRO- MIUM, DIS- SOLVED (UG/L AS CR) | COBALT, DIS- SOLVED (UG/L AS CO) | COPPER, DIS- SOLVED (UG/L AS CU) | IRON, DIS- SOLVED (UG/L AS FE) | LEAD, DIS- SOLVED (UG/L AS PB) | LITHIUM DIS- SOLVED (UG/L AS LI) |
|----------|---|--|--|--|--|---|--|--|--|--|--|
| OCT 1992 | | | | | | | | | | | |
| 23... | <10 | <1 | 39 | <0.5 | <1 | <1 | <3 | 6 | 13 | <1 | <4 |
| DEC | | | | | | | | | | | |
| 21... | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| FEB 1993 | | | | | | | | | | | |
| 22... | 80 | 1 | 36 | <0.5 | <1 | <1 | <3 | 2 | 66 | <1 | <4 |
| APR | | | | | | | | | | | |
| 30... | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| JUN | | | | | | | | | | | |
| 25... | 20 | <1 | 40 | <0.5 | <1 | 2 | <3 | 2 | 22 | <1 | <4 |
| SEP | | | | | | | | | | | |
| 23... | 50 | <1 | 43 | <0.5 | <1 | <1 | <3 | 5 | 73 | <1 | <4 |

| DATE | MANGA- NESE, DIS- SOLVED (UG/L AS MN) | MERCURY DIS- SOLVED (UG/L AS HG) | MOLYB- DENUM, DIS- SOLVED (UG/L AS MO) | NICKEL, DIS- SOLVED (UG/L AS NI) | SELE- NIUM, DIS- SOLVED (UG/L AS SE) | SILVER, DIS- SOLVED (UG/L AS AG) | STRON- TIUM, DIS- SOLVED (UG/L AS SR) | VANA- DIUM, DIS- SOLVED (UG/L AS V) | ZINC, DIS- SOLVED (UG/L AS ZN) |
|----------|--|--|---|--|---|--|--|--|--|
| OCT 1992 | | | | | | | | | |
| 23... | 8 | <0.1 | <10 | <1 | <1 | <1.0 | 150 | <6 | <3 |
| DEC | | | | | | | | | |
| 21... | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| FEB 1993 | | | | | | | | | |
| 22... | 17 | <0.1 | <10 | 2 | <1 | <1.0 | 150 | 8 | 17 |
| APR | | | | | | | | | |
| 30... | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| JUN | | | | | | | | | |
| 25... | 22 | 0.1 | <10 | 2 | <1 | <1.0 | 160 | 6 | 4 |
| SEP | | | | | | | | | |
| 23... | 22 | <0.1 | <10 | <1 | <1 | <1.0 | 160 | <6 | <3 |

RIO GRANDE DE MANATI BASIN

50038100 RIO GRANDE DE MANATI AT HIGHWAY 2 NEAR MANATI, PR--Continued
(National stream-quality accounting network station)

WATER-QUALITY DATA, WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993

PARTICLE-SIZE DISTRIBUTION OF SUSPENDED SEDIMENT

| DATE | TIME | STREAM- FLOW, INSTAN- TANEOUS (CFS) | SEDI- MENT, SUS- PENDEDED (MG/L) | SEDI- MENT, DIS- CHARGE, SUS- PENDEDED (T/DAY) | SED. SUSP. SIEVE DIAM. PERCENT FINER THAN .062 MM |
|----------|------|---|--|--|--|
| DEC 1992 | | | | | |
| 21... | 0915 | 228 | 40 | 24 | 81 |
| FEB 1993 | | | | | |
| 22... | 1025 | 251 | 57 | 39 | 92 |
| APR | | | | | |
| 30... | 1025 | 560 | 705 | 1065 | 76 |
| JUN | | | | | |
| 25... | 0950 | 183 | 10 | 5 | 25 |
| SEP | | | | | |
| 23... | 1210 | 168 | 74 | 34 | 94 |

PESTICIDE ANALYSES

| DATE | TIME | PCB, TOTAL (UG/L) | ALDRIN, TOTAL (UG/L) | CHLOR- DANE, TOTAL (UG/L) | DDD, TOTAL (UG/L) | DDE, TOTAL (UG/L) | DDT, TOTAL (UG/L) | DI- AZINON, TOTAL (UG/L) | DI- ELDRIN TOTAL (UG/L) | ENDO- SULFAN, TOTAL (UG/L) |
|----------|------|-------------------------|----------------------------|------------------------------------|-------------------------|-------------------------|-------------------------|-----------------------------------|----------------------------------|-------------------------------------|
| JUN 1993 | | | | | | | | | | |
| 23... | 1005 | <0.1 | <0.010 | <0.1 | <0.010 | <0.010 | <0.010 | <0.01 | <0.010 | <0.010 |

| DATE | ENDRIN WATER UNFLTRD REC (UG/L) | ETHION, TOTAL (UG/L) | HEPTA- CHLOR, TOTAL (UG/L) | HEPTA- CHLOR EPOXIDE TOTAL (UG/L) | LINDANE TOTAL (UG/L) | MALA- THION, TOTAL (UG/L) | METH- OXY- CHLOR, TOTAL (UG/L) | METHYL PARA- THION, TOTAL (UG/L) | MIREX, TOTAL (UG/L) |
|----------|---|----------------------------|-------------------------------------|---|----------------------------|------------------------------------|--|--|---------------------------|
| JUN 1993 | | | | | | | | | |
| 23... | <0.010 | <0.01 | <0.010 | <0.010 | <0.010 | <0.01 | <0.01 | <0.01 | <0.01 |

| DATE | PARA- THION, TOTAL (UG/L) | NAPH- THA- LENES, POLY- CHLOR. TOTAL (UG/L) | PER- THANE TOTAL (UG/L) | TOX- APHERE, TOTAL (UG/L) | TOTAL TRI- THION (UG/L) | 2,4-D, TOTAL (UG/L) | 2,4,5-T TOTAL (UG/L) | 2, 4-DP TOTAL (UG/L) | SILVEX, TOTAL (UG/L) |
|----------|------------------------------------|---|----------------------------------|------------------------------------|----------------------------------|---------------------------|----------------------------|----------------------------|----------------------------|
| JUN 1993 | | | | | | | | | |
| 23... | <0.01 | <0.10 | <0.1 | <1 | <0.01 | <0.01 | <0.01 | <0.01 | <0.01 |

LAGUNA TORTUGUERO BASIN

50038200 LAGUNA TORTUGUERO OUTLET NEAR VEGA BAJA, PR

WATER-QUALITY RECORDS

LOCATION.--Lat 18°28'29", long 66°26'50", at bridge on Highway 686, 4.2 mi (6.8 km) northeast of Manatí.

DRAINAGE AREA.--Indeterminate.

PERIOD OF RECORD.--Water years 1964-66, 1969-71, 1974 to current year.

WATER-QUALITY DATA, WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993

| DATE | TIME | DIS- CHARGE, INST. CUBIC FEET PER SECOND | SPE- CIFIC CON- DUCT- ANCE (US/CM) | PH WATER WHOLE FIELD (STAND- ARD UNITS) | TEMPER- ATURE WATER (DEG C) | OXYGEN, DIS- SOLVED (MG/L) | OXYGEN, DIS- SOLVED (PER- CENT SATUR- ATION) | OXYGEN DEMAND, CHEM- ICAL (HIGH LEVEL) (MG/L) | COLI- FORM, FECAL, 0.45 UM-MF (COLS./ 100 ML) | STREP- TOCOCCI FECAL, (COLS. PER 100 ML) |
|----------|------|--|---|---|--------------------------------------|-------------------------------------|--|---|---|---|
| OCT 1992 | | | | | | | | | | |
| 02... | 0830 | 12 | 1470 | 7.1 | 29.0 | 6.2 | 79 | 34 | K80 | K70 |
| DEC | | | | | | | | | | |
| 09... | 0830 | 12 | 1240 | 6.4 | 26.5 | 6.0 | 73 | 30 | 50 | 60 |
| FEB 1993 | | | | | | | | | | |
| 08... | 0830 | 19 | 1090 | 7.8 | 26.0 | 5.2 | 63 | 33 | K100 | K300 |
| APR | | | | | | | | | | |
| 19... | 0840 | 4.04 | 1330 | 7.7 | 27.5 | 5.8 | 72 | 37 | K175 | 540 |
| MAY | | | | | | | | | | |
| 27... | 1150 | 7.39 | 1150 | 7.6 | 29.0 | 6.4 | 82 | 48 | 660 | 53 |
| SEP | | | | | | | | | | |
| 07... | 1215 | 8.35 | 1180 | 7.5 | 30.4 | 5.6 | 70 | 35 | 100 | 70 |

| DATE | ALKA- LITY WAT WH TOT FET FIELD MG/L AS CACO3 | SULFIDE TOTAL (MG/L AS S) | RESIDUE TOTAL AT 105 DEG. C, SUS- PENDE (MG/L) | NITRO- GEN, NITRATE TOTAL (MG/L AS N) | NITRO- GEN, NITRITE TOTAL (MG/L AS N) | NITRO- GEN, NO2+NO3 TOTAL (MG/L AS N) | NITRO- GEN, AMMONIA TOTAL (MG/L AS N) | NITRO- GEN, ORGANIC TOTAL (MG/L AS N) | NITRO- GEN, AM- MONIA + ORGANIC TOTAL (MG/L AS N) | NITRO- GEN, TOTAL (MG/L AS N) |
|----------|---|------------------------------------|--|--|--|--|--|--|---|---|
| OCT 1992 | | | | | | | | | | |
| 02... | 120 | <0.5 | <1 | 0.550 | 0.010 | 0.560 | 0.400 | 0.50 | 0.90 | 1.5 |
| DEC | | | | | | | | | | |
| 09... | 140 | -- | 4 | 0.390 | 0.010 | 0.400 | 0.230 | 0.67 | 0.90 | 1.3 |
| FEB 1993 | | | | | | | | | | |
| 08... | 130 | -- | 7 | 0.780 | 0.020 | 0.800 | 0.440 | 1.4 | 1.8 | 2.6 |
| APR | | | | | | | | | | |
| 19... | 130 | <0.5 | 5 | 0.980 | 0.020 | 1.00 | 0.090 | 1.0 | 1.1 | 2.1 |
| MAY | | | | | | | | | | |
| 27... | 120 | -- | 5 | 1.08 | 0.020 | 1.10 | 0.330 | 1.1 | 1.4 | 2.5 |
| SEP | | | | | | | | | | |
| 07... | 120 | -- | 6 | 0.580 | 0.020 | 0.600 | 0.200 | 1.1 | 1.3 | 1.9 |

| DATE | NITRO- GEN, TOTAL (MG/L AS NO3) | PHOS- PHORUS TOTAL (MG/L AS P) | BORON, TOTAL RECOV- ERABLE (UG/L AS B) | COPPER, TOTAL RECOV- ERABLE (UG/L AS CU) | IRON, TOTAL RECOV- ERABLE (UG/L AS FE) | MANGA- NESE, TOTAL RECOV- ERABLE (UG/L AS MN) | ZINC, TOTAL RECOV- ERABLE (UG/L AS ZN) | CYANIDE TOTAL (MG/L AS CN) | PHENOLS TOTAL (UG/L) | METHY- LENE BLUE ACTIVE SUB- STANCE (MG/L) |
|----------|---|--|---|---|---|---|---|-------------------------------------|----------------------------|--|
| OCT 1992 | | | | | | | | | | |
| 02... | 6.5 | <0.010 | 90 | <10 | 50 | 10 | <10 | <0.010 | 3 | 0.06 |
| DEC | | | | | | | | | | |
| 09... | 5.8 | 0.010 | -- | -- | -- | -- | -- | -- | -- | -- |
| FEB 1993 | | | | | | | | | | |
| 08... | 12 | 0.010 | -- | -- | -- | -- | -- | -- | -- | -- |
| APR | | | | | | | | | | |
| 19... | 9.3 | 0.030 | 100 | 10 | 120 | 20 | <10 | <0.010 | 4 | 0.10 |
| MAY | | | | | | | | | | |
| 27... | 11 | <0.010 | -- | -- | -- | -- | -- | -- | -- | -- |
| SEP | | | | | | | | | | |
| 07... | 8.4 | 0.010 | -- | -- | -- | -- | -- | -- | -- | -- |

K = non-ideal count

RIO CIBUCO BASIN

50038320 RIO CIBUCO BELOW COROZAL, PR

LOCATION.--Lat 18°21'13", long 66°20'07", Hydrologic Unit 21010001, on right bank, 150 ft (46 m) downstream from junction with Río Corozal, and 1.4 mi (2.3 km) northwest of Corozal.

DRAINAGE AREA.--15.1 mi² (39.1 km²).

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--May 1969 to current year.

GAGE.--Water-stage recorder. Elevation of gage is 195 ft (59 m), from topographic map.

REMARKS.--Records fair. Gage-height and precipitation satellite telemetry at station. Daily discharge affected by sewage treatment plant about 0.6 mi (1.0 km) upstream.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993
DAILY MEAN VALUES

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|-------|-------|-------|------|-------|-------|-------|--------|------|------|------|------|------|
| 1 | 12 | 6.5 | 26 | 18 | 25 | 10 | 6.4 | 204 | 27 | 22 | 17 | 11 |
| 2 | 43 | 6.2 | 21 | 14 | 15 | 10 | 6.5 | 207 | 25 | 23 | 16 | 11 |
| 3 | 18 | 15 | 19 | 12 | 17 | 9.3 | 6.4 | 91 | 24 | 24 | 16 | 10 |
| 4 | 11 | 82 | 19 | 11 | 17 | 9.3 | 5.9 | 62 | 23 | 21 | 16 | 14 |
| 5 | 12 | 21 | 18 | 20 | 15 | 8.9 | 5.5 | 46 | 23 | 19 | 16 | 17 |
| 6 | 9.1 | 14 | 18 | 15 | 13 | 9.4 | 5.7 | 117 | 22 | 19 | 16 | 20 |
| 7 | 8.5 | 12 | 17 | 46 | 13 | 9.6 | 5.9 | 210 | 23 | 30 | 15 | 23 |
| 8 | 8.5 | 11 | 18 | 25 | 13 | 9.2 | 39 | 118 | 26 | 22 | 14 | 14 |
| 9 | 9.4 | 13 | 17 | 15 | 12 | 9.3 | 73 | 225 | 25 | 19 | 16 | 16 |
| 10 | 8.9 | 11 | 18 | 12 | 11 | 8.9 | 26 | 110 | 26 | 19 | 15 | 12 |
| 11 | 11 | 8.9 | 17 | 12 | 11 | 8.9 | 705 | 95 | 23 | 102 | 14 | 13 |
| 12 | 9.3 | 8.3 | 17 | 12 | 10 | 8.4 | 89 | 66 | 21 | 36 | 15 | 11 |
| 13 | 8.1 | 107 | 17 | 11 | 10 | 7.5 | 55 | 53 | 21 | 25 | 15 | 11 |
| 14 | 8.5 | 20 | 28 | 10 | 9.4 | 6.7 | 228 | 71 | 21 | 22 | 14 | 10 |
| 15 | 8.2 | 12 | 34 | 9.6 | 9.5 | 7.3 | 166 | 46 | 22 | 20 | 16 | 17 |
| 16 | 8.1 | 9.5 | 17 | 8.7 | 13 | 10 | 98 | 43 | 21 | 21 | 41 | 40 |
| 17 | 19 | 9.0 | 21 | 8.3 | 12 | 11 | 46 | 39 | 21 | 20 | 18 | 22 |
| 18 | 48 | 9.4 | 18 | 7.9 | 9.8 | 6.8 | 32 | 39 | 18 | 19 | 16 | 362 |
| 19 | 16 | 7.4 | 18 | 7.7 | 9.2 | 6.1 | 25 | 38 | 46 | 19 | 14 | 152 |
| 20 | 9.0 | 17 | 18 | 7.6 | 34 | 7.0 | 46 | 37 | 36 | 18 | 13 | 46 |
| 21 | 7.3 | 9.1 | 17 | 7.9 | 17 | 5.8 | 129 | 36 | 23 | 18 | 13 | 27 |
| 22 | 14 | 19 | 35 | 14 | 12 | 5.5 | 67 | 36 | 23 | 26 | 13 | 20 |
| 23 | 20 | 13 | 22 | 14 | 11 | 12 | 38 | 81 | 20 | 25 | 12 | 18 |
| 24 | 13 | 12 | 40 | 10 | 9.2 | 7.0 | 32 | 39 | 20 | 68 | 12 | 18 |
| 25 | 12 | 11 | 48 | 16 | 8.0 | 8.2 | 31 | 56 | 19 | 25 | 11 | 16 |
| 26 | 8.6 | 12 | 356 | 11 | 10 | 8.3 | 28 | 41 | 18 | 66 | 11 | 16 |
| 27 | 8.2 | 332 | 87 | 10 | 8.6 | 7.6 | 60 | 81 | 21 | 35 | 11 | 42 |
| 28 | 7.4 | 75 | 99 | 10 | 10 | 7.3 | 143 | 37 | 30 | 23 | 14 | 28 |
| 29 | 6.9 | 65 | 65 | 20 | --- | 7.8 | 657 | 33 | 24 | 18 | 13 | 21 |
| 30 | 8.1 | 37 | 35 | 15 | --- | 9.7 | 176 | 31 | 29 | 18 | 11 | 19 |
| 31 | 6.5 | --- | 23 | 25 | --- | 10 | --- | 29 | --- | 17 | 11 | --- |
| TOTAL | 397.6 | 985.3 | 1223 | 435.7 | 364.7 | 262.8 | 3031.3 | 2417 | 721 | 859 | 465 | 1057 |
| MEAN | 12.8 | 32.8 | 39.5 | 14.1 | 13.0 | 8.48 | 101 | 78.0 | 24.0 | 27.7 | 15.0 | 35.2 |
| MAX | 48 | 332 | 356 | 46 | 34 | 12 | 705 | 225 | 46 | 102 | 41 | 362 |
| MIN | 6.5 | 6.2 | 17 | 7.6 | 8.0 | 5.5 | 5.5 | 29 | 18 | 17 | 11 | 10 |
| AC-FT | 789 | 1950 | 2430 | 864 | 723 | 521 | 6010 | 4790 | 1430 | 1700 | 922 | 2100 |
| CFSM | .85 | 2.18 | 2.61 | .93 | .86 | .56 | 6.69 | 5.16 | 1.59 | 1.84 | .99 | 2.33 |
| IN. | .98 | 2.43 | 3.01 | 1.07 | .90 | .65 | 7.47 | 5.95 | 1.78 | 2.12 | 1.15 | 2.60 |

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1969 - 1993, BY WATER YEAR (WY)

| | MEAN | 42.3 | 46.1 | 37.2 | 25.2 | 21.6 | 23.1 | 36.4 | 47.5 | 15.5 | 12.6 | 17.0 | 26.8 |
|------|------|------|------|------|------|------|------|------|------|------|------|------|------|
| MAX | 135 | 155 | 169 | 69.6 | 51.3 | 65.1 | 111 | 157 | 44.4 | 34.6 | 50.8 | 73.2 | |
| (WY) | 1991 | 1971 | 1971 | 1992 | 1988 | 1981 | 1973 | 1986 | 1987 | 1979 | 1979 | 1979 | |
| MIN | 8.05 | 8.15 | 6.86 | 8.36 | 8.11 | 4.36 | 3.32 | 3.20 | 2.26 | 2.93 | 3.44 | 6.54 | |
| (WY) | 1979 | 1974 | 1979 | 1978 | 1984 | 1984 | 1984 | 1977 | 1977 | 1977 | 1978 | 1978 | |

SUMMARY STATISTICS

FOR 1992 CALENDAR YEAR

FOR 1993 WATER YEAR

WATER YEARS 1969 - 1993

| | | | |
|--------------------------|--------|---------|-------------|
| ANNUAL TOTAL | 8947.8 | 12219.4 | |
| ANNUAL MEAN | 24.4 | 33.5 | |
| HIGHEST ANNUAL MEAN | | | 29.4 |
| LOWEST ANNUAL MEAN | | | 56.5 |
| HIGHEST DAILY MEAN | 1260 | Jan 5 | 13.6 |
| LOWEST DAILY MEAN | 6.2 | Nov 2 | 1984 |
| ANNUAL SEVEN-DAY MINIMUM | 7.1 | Oct 27 | 2370 |
| INSTANTANEOUS PEAK FLOW | | | May 18 1985 |
| INSTANTANEOUS PEAK STAGE | | | 1.3 |
| ANNUAL RUNOFF (AC-FT) | 17750 | | Jul 24 1977 |
| ANNUAL RUNOFF (CFSM) | 1.62 | | 1.4 |
| ANNUAL RUNOFF (INCHES) | 22.04 | | Jul 20 1977 |
| 10 PERCENT EXCEEDS | 37 | | 13600 |
| 50 PERCENT EXCEEDS | 12 | | Nov 7 1979 |
| 90 PERCENT EXCEEDS | 8.2 | | Nov 7 1979 |
| | | | 19.80 |
| | | | 21310 |
| | | | 1.95 |
| | | | 26.47 |
| | | | 50 |
| | | | 14 |
| | | | 6.0 |

RIO CIBUCO BASIN
50038320 RIO CIBUCO BELOW COROZAL, PR--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Water years 1969-76, 1979 to current year.

WATER-QUALITY DATA, WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993

| DATE | TIME | DIS-CHARGE, INST. CUBIC FEET PER SECOND | SPE-CIFIC CON-DUCT-ANCE (US/CM) | PH WATER WHOLE FIELD (STAND-ARD UNITS) | TEMPER-ATURE WATER (DEG C) | TUR-BID-ITY (NTU) | OXYGEN, DIS-SOLVED (MG/L) | OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION) | OXYGEN DEMAND, CHEM-ICAL (HIGH LEVEL) (MG/L) | COLI-FORM, FECAL, 0.45 UM-MF (COLS./ 100 ML) | STREP-TOCOCCI, FECAL, (COLS. PER 100 ML) |
|-----------|------|---|---------------------------------|--|----------------------------|-------------------|---------------------------|---|--|--|--|
| OCT 1992 | | | | | | | | | | | |
| 07... | 0905 | 9.5 | 392 | 7.0 | 26.0 | 5.0 | 5.9 | 72 | <10 | K1200 | 540 |
| DEC 23... | 0825 | 21 | 333 | 7.2 | 23.0 | -- | 6.6 | 77 | -- | 5000 | 4900 |
| FEB 1993 | | | | | | | | | | | |
| 05... | 0900 | 153 | 359 | 8.0 | 21.0 | 7.1 | 6.0 | 56 | 43 | 4600 | 5100 |
| APR 14... | 0930 | 53 | 262 | 7.3 | 22.5 | 89 | 8.2 | 89 | 15 | K19000 | 3600 |
| MAY 25... | 0855 | 43 | 291 | 7.1 | 24.0 | 16 | 7.5 | 67 | 30 | K13000 | K12000 |
| SEP 02... | 1140 | 9.8 | 324 | 7.4 | 25.0 | 1.0 | 7.9 | 72 | <10 | 3400 | 2400 |

| DATE | HARD-NESS TOTAL (MG/L AS CACO3) | HARD-NESS NONCARB WH WAT TOT FLD MG/L AS CACO3 | CALCIUM DIS-SOLVED (MG/L AS CA) | MAGNE-SIUM, DIS-SOLVED (MG/L AS MG) | SODIUM, DIS-SOLVED (MG/L AS NA) | SODIUM AD-SORP-TION RATIO | POTAS-SIUM, DIS-SOLVED (MG/L AS K) | ALKA-LINITY WAT WH TOT FET FIELD MG/L AS CACO3 | SULFIDE TOTAL (MG/L AS S) | SULFATE DIS-SOLVED (MG/L AS SO4) | CHLO-RIDE, DIS-SOLVED (MG/L AS CL) |
|-----------|---------------------------------|--|---------------------------------|-------------------------------------|---------------------------------|---------------------------|------------------------------------|--|---------------------------|----------------------------------|------------------------------------|
| OCT 1992 | | | | | | | | | | | |
| 07... | 83 | 6 | 20 | 8.1 | 11 | 0.5 | 2.4 | 79 | <0.5 | 7.7 | 14 |
| DEC 23... | -- | -- | -- | -- | -- | -- | -- | 120 | -- | -- | -- |
| FEB 1993 | | | | | | | | | | | |
| 05... | -- | -- | -- | -- | -- | -- | -- | 130 | -- | -- | -- |
| APR 14... | 98 | 0 | 24 | 9.2 | 13 | 0.6 | 4.2 | 94 | <0.5 | 17 | 16 |
| MAY 25... | -- | -- | -- | -- | -- | -- | -- | 98 | -- | -- | -- |
| SEP 02... | 140 | 3 | 36 | 12 | 22 | 0.8 | 3.3 | 98 | -- | 16 | 24 |

| DATE | FLUO-RIDE, DIS-SOLVED (MG/L AS F) | SILICA, DIS-SOLVED (MG/L AS SIO2) | SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L) | SOLIDS, DIS-SOLVED (TONS PER DAY) | RESIDUE TOTAL AT 105 DEG. C, SUS-PENDED (MG/L) | NITRO-GEN, NITRATE TOTAL (MG/L AS N) | NITRO-GEN, NITRITE TOTAL (MG/L AS N) | NITRO-GEN, NO2+NO3 TOTAL (MG/L AS N) | NITRO-GEN, AMMONIA TOTAL (MG/L AS N) | NITRO-GEN, ORGANIC TOTAL (MG/L AS N) |
|-----------|-----------------------------------|-----------------------------------|---|-----------------------------------|--|--------------------------------------|--------------------------------------|--------------------------------------|--------------------------------------|--------------------------------------|
| OCT 1992 | | | | | | | | | | |
| 07... | 0.20 | 21 | 132 | 3.39 | 4 | 2.25 | 0.050 | 2.30 | 0.110 | 0.39 |
| DEC 23... | -- | -- | -- | -- | 17 | -- | <0.010 | 0.360 | 0.020 | -- |
| FEB 1993 | | | | | | | | | | |
| 05... | -- | -- | -- | -- | <1 | -- | <0.010 | 0.300 | 0.020 | -- |
| APR 14... | 0.10 | 23 | 163 | 23.3 | 86 | 1.25 | 0.050 | 1.30 | 0.070 | 0.53 |
| MAY 25... | -- | -- | -- | -- | 24 | -- | <0.010 | 0.170 | 0.080 | 0.72 |
| SEP 02... | 0.10 | 34 | 206 | 5.46 | 4 | -- | <0.010 | 0.270 | 0.030 | -- |

K = non-ideal count

RIO CIBUCO BASIN

50038320 RIO CIBUCO BELOW COROZAL, PR--Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993

| DATE | NITRO- GEN, AM- MONIA + ORGANIC TOTAL (MG/L AS N) | NITRO- GEN, TOTAL (MG/L AS N) | NITRO- GEN, TOTAL (MG/L AS NO3) | PHOS- PHORUS TOTAL (MG/L AS P) | ARSENIC TOTAL (UG/L AS AS) | BARIUM, TOTAL RECOV- ERABLE (UG/L AS BA) | BORON, TOTAL RECOV- ERABLE (UG/L AS B) | CADMIUM TOTAL RECOV- ERABLE (UG/L AS CD) | CHRO- MIUM, TOTAL RECOV- ERABLE (UG/L AS CR) | COPPER, TOTAL RECOV- ERABLE (UG/L AS CU) |
|-----------|---|---|---|--|-------------------------------------|---|---|---|--|---|
| OCT 1992 | | | | | | | | | | |
| 07... | 0.50 | 2.8 | 12 | 0.540 | <1 | <100 | 30 | <1 | 8 | 20 |
| DEC 23... | <0.20 | -- | -- | 0.070 | -- | -- | -- | -- | -- | -- |
| FEB 1993 | | | | | | | | | | |
| 05... | <0.20 | -- | -- | 0.060 | -- | -- | -- | -- | -- | -- |
| APR 14... | 0.60 | 1.9 | 8.4 | 0.130 | <1 | <100 | 20 | 1 | 12 | 20 |
| MAY 25... | 0.80 | 0.97 | 4.3 | 0.040 | -- | -- | -- | -- | -- | -- |
| SEP 02... | <0.20 | -- | -- | 0.040 | -- | -- | -- | -- | -- | -- |

[illegible]

RIO CIBUCO BASIN

50039500 RIO CIBUCO AT VEGA BAJA, PR

LOCATION.--Lat 18°26'53", long 66°22'29", Hydrologic Unit 21010002, on left bank, at bridge on Hwy 2, 0.6 mi (1.0 km) downstream from Río Indio, and 0.8 mi (1.3 km) east of Vega Baja.

DRAINAGE AREA.--99.1 mi² (256.7 km²), of which 25.4 mi² (65.8 km²), does not contribute directly to surface runoff.

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--January 1973 to current year.

GAGE.--Water-stage recorder. Datum of gage is 7.79 ft (2.374 m) above mean sea level.

REMARKS.--Records fair except those for estimated daily discharges, which are poor. Gage-height and precipitation satellite telemetry at station.

EXTREMES OUTSIDE PERIOD OF RECORD.--Flood of Dec. 11, 1965 reached a stage of 26.2 ft (7.99 m), datum unknown, discharge about 28,000 ft³/s (793 m³/s).

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993
DAILY MEAN VALUES

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|-------|------|-------|-------|------|------|------|-------|-------|------|------|------|------|
| 1 | 92 | 26 | 222 | 175 | 250 | 57 | 39 | 549 | 193 | 78 | 80 | 55 |
| 2 | 64 | 24 | 159 | 144 | e65 | 56 | 31 | 934 | 154 | 77 | 77 | 53 |
| 3 | 205 | 27 | 122 | 125 | e52 | 53 | 30 | 452 | 140 | 101 | 73 | 47 |
| 4 | 53 | 452 | 109 | 114 | e52 | 50 | 30 | 289 | 127 | 80 | 71 | 45 |
| 5 | 81 | 234 | 93 | 101 | e51 | 48 | 29 | 226 | 118 | 58 | 69 | 59 |
| 6 | 66 | 97 | 70 | 157 | e50 | 46 | 28 | 478 | 108 | 53 | 71 | 67 |
| 7 | 38 | 61 | 66 | 250 | e50 | 45 | 28 | 1260 | 110 | 68 | 65 | 102 |
| 8 | 33 | 49 | 58 | 146 | e50 | 42 | 48 | 623 | 115 | 103 | 62 | 81 |
| 9 | 34 | 53 | e54 | 114 | 49 | 42 | 239 | 1190 | 114 | 59 | 62 | 48 |
| 10 | 29 | 51 | e60 | 98 | 48 | 41 | 259 | 515 | 107 | 53 | 68 | 56 |
| 11 | 48 | 41 | e57 | 88 | 47 | 41 | 502 | 444 | 109 | 225 | 60 | 55 |
| 12 | 30 | 36 | e57 | 90 | 47 | 41 | 1040 | 337 | 87 | 245 | 60 | 43 |
| 13 | 27 | 151 | e70 | 84 | 47 | 38 | 312 | 273 | 83 | 84 | 58 | 51 |
| 14 | 26 | 344 | e98 | 81 | 44 | 36 | 682 | 325 | 84 | 63 | 59 | 45 |
| 15 | 25 | 62 | e112 | 72 | 43 | 35 | 632 | 245 | 79 | 54 | 63 | 41 |
| 16 | 24 | 59 | e58 | 66 | 43 | 53 | 511 | 333 | 79 | 53 | 171 | 206 |
| 17 | 54 | 65 | e70 | 65 | 65 | 80 | 381 | 294 | 73 | 49 | 138 | 115 |
| 18 | 90 | 52 | e60 | 60 | 49 | 54 | 152 | 216 | 68 | 47 | 69 | 482 |
| 19 | 133 | 48 | e62 | 55 | 50 | 41 | 104 | 193 | 135 | 48 | 60 | 598 |
| 20 | 41 | 56 | e62 | 53 | 123 | 36 | 216 | 181 | 196 | 49 | 55 | 320 |
| 21 | 30 | 125 | e57 | 53 | 187 | 35 | 775 | 199 | 105 | 50 | 54 | 117 |
| 22 | 29 | 54 | e179 | 60 | 91 | 34 | 513 | 189 | 89 | 77 | 52 | 82 |
| 23 | 52 | 135 | 187 | 149 | 66 | 33 | 181 | 623 | 88 | 136 | 63 | 79 |
| 24 | 58 | 92 | 225 | 69 | 60 | 70 | 120 | 443 | 78 | 264 | 51 | 180 |
| 25 | 41 | 71 | 464 | 88 | 56 | 50 | 97 | 429 | 73 | 174 | 49 | 79 |
| 26 | 31 | 49 | 1110 | 76 | 55 | 38 | 76 | 360 | 65 | 176 | 49 | 95 |
| 27 | 40 | 624 | 792 | 59 | 56 | 35 | 122 | 399 | 64 | 226 | 46 | 90 |
| 28 | 28 | 952 | e536 | 57 | 56 | 35 | 392 | 297 | 62 | 119 | 47 | 217 |
| 29 | 26 | 793 | e460 | 62 | --- | 36 | 1610 | 232 | 107 | 93 | 62 | 118 |
| 30 | 47 | 537 | 392 | 115 | --- | 40 | 3260 | 204 | 109 | 90 | 56 | 119 |
| 31 | 29 | --- | 232 | 122 | --- | 69 | --- | 218 | --- | 84 | 58 | --- |
| TOTAL | 1604 | 5420 | 6353 | 3048 | 1902 | 1410 | 12439 | 12950 | 3119 | 3136 | 2078 | 3745 |
| MEAN | 51.7 | 181 | 205 | 98.3 | 67.9 | 45.5 | 415 | 418 | 104 | 101 | 67.0 | 125 |
| MAX | 205 | 952 | 1110 | 250 | 250 | 80 | 3260 | 1260 | 196 | 264 | 171 | 598 |
| MIN | 24 | 24 | 54 | 53 | 43 | 33 | 28 | 181 | 62 | 47 | 46 | 41 |
| AC-FT | 3180 | 10750 | 12600 | 6050 | 3770 | 2800 | 24670 | 25690 | 6190 | 6220 | 4120 | 7430 |
| CFSM | .52 | 1.82 | 2.07 | .99 | .69 | .46 | 4.18 | 4.22 | 1.05 | 1.02 | .68 | 1.26 |
| IN. | .60 | 2.03 | 2.38 | 1.14 | .71 | .53 | 4.67 | 4.86 | 1.17 | 1.18 | .78 | 1.41 |

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1973 - 1993, BY WATER YEAR (WY)

| | 1973 | 1974 | 1975 | 1976 | 1977 | 1978 | 1979 | 1980 | 1981 | 1982 | 1983 | 1984 | 1985 | 1986 | 1987 | 1988 | 1989 | 1990 | 1991 | 1992 | 1993 |
|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|
| MEAN | 165 | 189 | 185 | 96.6 | 91.1 | 93.5 | 172 | 220 | 78.2 | 56.2 | 84.4 | 121 | | | | | | | | | |
| MAX | 559 | 523 | 1316 | 209 | 190 | 339 | 671 | 655 | 245 | 162 | 461 | 450 | | | | | | | | | |
| (WY) | 1986 | 1980 | 1982 | 1988 | 1988 | 1990 | 1987 | 1985 | 1987 | 1979 | 1979 | 1979 | | | | | | | | | |
| MIN | 45.9 | 40.0 | 30.5 | 36.3 | 32.6 | 24.3 | 16.2 | 24.7 | 12.8 | 15.5 | 21.2 | 27.3 | | | | | | | | | |
| (WY) | 1974 | 1974 | 1979 | 1984 | 1977 | 1984 | 1984 | 1977 | 1977 | 1977 | 1978 | 1991 | | | | | | | | | |

SUMMARY STATISTICS

FOR 1992 CALENDAR YEAR

FOR 1993 WATER YEAR

WATER YEARS 1973 - 1993

| | 1992 | 1993 | 1973-1993 |
|--------------------------|-------|--------|-----------|
| ANNUAL TOTAL | 36541 | 57204 | |
| ANNUAL MEAN | 99.8 | 157 | 130 |
| HIGHEST ANNUAL MEAN | | | 236 |
| LOWEST ANNUAL MEAN | | | 49.3 |
| HIGHEST DAILY MEAN | 2930 | Jan 6 | 14600 |
| LOWEST DAILY MEAN | 19 | May 15 | 7.4 |
| ANNUAL SEVEN-DAY MINIMUM | 22 | May 9 | 8.5 |
| INSTANTANEOUS PEAK FLOW | | | 12900 |
| INSTANTANEOUS PEAK STAGE | | | 17.35 |
| INSTANTANEOUS LOW FLOW | | | 22 |
| ANNUAL RUNOFF (AC-FT) | 72480 | 113500 | 94230 |
| ANNUAL RUNOFF (CFSM) | 1.01 | 1.58 | 1.31 |
| ANNUAL RUNOFF (INCHES) | 13.72 | 21.47 | 17.83 |
| 10 PERCENT EXCEEDS | 210 | 385 | 232 |
| 50 PERCENT EXCEEDS | 42 | 70 | 61 |
| 90 PERCENT EXCEEDS | 25 | 39 | 26 |
| e Estimated | | | |

RIO CIBUCO BASIN

50039500 RIO CIBUCO AT VEGA BAJA, PR--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Water years 1972 to current year.

WATER-QUALITY DATA, WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993

| DATE | TIME | DIS-CHARGE, INST. CUBIC FEET PER SECOND | SPE-CIFIC CON-DUCT-ANCE (US/CM) | PH WATER WHOLE FIELD (STAND-ARD UNITS) | TEMPER-ATURE WATER (DEG C) | TUR-BID-ITY (NTU) | OXYGEN, DIS-SOLVED (MG/L) | OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION) | OXYGEN DEMAND, CHEM-ICAL (HIGH LEVEL) (MG/L) | COLI-FORM, FECAL, 0.45 UM-MF (COLS./100 ML) | STREP-TOCOCCI, FECAL, (COLS. PER 100 ML) |
|-----------|------|---|---------------------------------|--|----------------------------|-------------------|---------------------------|---|--|---|--|
| OCT 1992 | | | | | | | | | | | |
| 02... | 1110 | 41 | 413 | 7.4 | 27.0 | 50 | 5.2 | 64 | 14 | 3300 | 970 |
| DEC 09... | 1040 | 55 | 474 | 7.2 | 24.0 | 17 | 3.7 | 43 | 25 | 450 | 710 |
| FEB 1993 | | | | | | | | | | | |
| 08... | 1040 | 52 | 439 | 7.7 | 24.5 | 5.2 | 4.6 | 54 | 17 | 420 | 260 |
| APR 19... | 1200 | 114 | 404 | 7.4 | 24.5 | 29 | 6.9 | 81 | 15 | 730 | 2600 |
| JUN 07... | 1125 | 104 | 413 | 7.6 | 27.0 | 12 | 6.9 | 85 | 15 | 440 | 64 |
| SEP 15... | 1300 | 44 | 357 | 7.6 | 28.0 | 1.4 | 7.2 | 91 | <10 | 390 | 150 |

| DATE | HARD-NESS TOTAL (MG/L AS CaCO3) | HARD-NESS NONCARB WH WAT TOT FLD (MG/L AS CaCO3) | CALCIUM DIS-SOLVED (MG/L AS Ca) | MAGNE-SIUM, DIS-SOLVED (MG/L AS Mg) | SODIUM, DIS-SOLVED (MG/L AS Na) | SODIUM AD-SORP-TION RATIO | POTAS-SIUM, DIS-SOLVED (MG/L AS K) | ALKA-LINITY WAT WH TOT FET FIELD (MG/L AS CaCO3) | SULFIDE TOTAL (MG/L AS S) | SULFATE DIS-SOLVED (MG/L AS SO4) | CHLO-RIDE, DIS-SOLVED (MG/L AS Cl) |
|-----------|---------------------------------|--|---------------------------------|-------------------------------------|---------------------------------|---------------------------|------------------------------------|--|---------------------------|----------------------------------|------------------------------------|
| OCT 1992 | | | | | | | | | | | |
| 02... | 160 | 17 | 52 | 7.6 | 14 | 0.5 | 5.1 | 150 | <0.5 | 17 | 24 |
| DEC 09... | -- | -- | -- | -- | -- | -- | -- | 200 | -- | -- | -- |
| FEB 1993 | | | | | | | | | | | |
| 08... | -- | -- | -- | -- | -- | -- | -- | 190 | -- | -- | -- |
| APR 19... | 170 | 23 | 54 | 8.9 | 12 | 0.4 | 3.8 | 160 | <0.5 | 20 | 20 |
| JUN 07... | -- | -- | -- | -- | -- | -- | -- | 170 | -- | -- | -- |
| SEP 15... | 170 | 14 | 54 | 9.4 | 18 | 0.6 | 3.2 | 150 | -- | 13 | 22 |

| DATE | FLUO-RIDE, DIS-SOLVED (MG/L AS F) | SILICA, DIS-SOLVED (MG/L AS SiO2) | SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L) | SOLIDS, DIS-SOLVED (TONS PER DAY) | RESIDUE TOTAL AT 105 DEG. C, SUS-PENDED (MG/L) | NITRO-GEN, NITRATE TOTAL (MG/L AS N) | NITRO-GEN, NITRITE TOTAL (MG/L AS N) | NITRO-GEN, NO2+NO3 TOTAL (MG/L AS N) | NITRO-GEN, AMMONIA TOTAL (MG/L AS N) | NITRO-GEN, ORGANIC TOTAL (MG/L AS N) |
|-----------|-----------------------------------|-----------------------------------|---|-----------------------------------|--|--------------------------------------|--------------------------------------|--------------------------------------|--------------------------------------|--------------------------------------|
| OCT 1992 | | | | | | | | | | |
| 02... | 0.20 | 15 | 225 | 25.1 | <1 | 1.51 | 0.090 | 1.60 | 0.130 | 0.47 |
| DEC 09... | -- | -- | -- | -- | 10 | 1.42 | 0.080 | 1.50 | 0.130 | 0.57 |
| FEB 1993 | | | | | | | | | | |
| 08... | -- | -- | -- | -- | 16 | 1.21 | 0.090 | 1.30 | 0.210 | 0.89 |
| APR 19... | 0.10 | 19 | 234 | 71.9 | 27 | 1.18 | 0.020 | 1.20 | 0.080 | 0.62 |
| JUN 07... | -- | -- | -- | -- | 11 | 1.23 | 0.070 | 1.30 | 0.100 | 1.6 |
| SEP 15... | 0.10 | 20 | 230 | 27.3 | 9 | 1.11 | 0.090 | 1.20 | 0.180 | 0.52 |

K = non-ideal count

50039500 RIO CIBUCO AT VEGA BAJA, PR--Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993

| DATE | NITRO- GEN, AM- MONIA + ORGANIC TOTAL (MG/L AS N) | NITRO- GEN, TOTAL (MG/L AS N) | NITRO- GEN, TOTAL (MG/L AS NO ₃) | PHOS- PHORUS TOTAL (MG/L AS P) | ARSENIC TOTAL (UG/L AS AS) | BARIUM, TOTAL RECOV- ERABLE (UG/L AS BA) | BORON, TOTAL RECOV- ERABLE (UG/L AS B) | CADMIUM TOTAL RECOV- ERABLE (UG/L AS CD) | CHRO- MIUM, TOTAL RECOV- ERABLE (UG/L AS CR) | COPPER, TOTAL RECOV- ERABLE (UG/L AS CU) |
|----------|---|---|--|--|-------------------------------------|---|---|---|--|---|
| OCT 1992 | | | | | | | | | | |
| 02... | 0.60 | 2.2 | 9.7 | 0.360 | <1 | <100 | 30 | <1 | 2 | 10 |
| DEC | | | | | | | | | | |
| 09... | 0.70 | 1.9 | 10 | 0.260 | -- | -- | -- | -- | -- | -- |
| FEB 1993 | | | | | | | | | | |
| 08... | 1.1 | 2.4 | 11 | 0.260 | -- | -- | -- | -- | -- | -- |
| APR | | | | | | | | | | |
| 19... | 0.70 | 1.9 | 9.8 | 0.080 | <1 | 100 | 30 | <1 | 4 | 10 |
| JUN | | | | | | | | | | |
| 07... | 1.7 | 3.0 | 13 | 0.280 | -- | -- | -- | -- | -- | -- |
| SEP | | | | | | | | | | |
| 15... | 0.7 | 1.9 | 8.4 | 0.190 | -- | -- | -- | -- | -- | -- |

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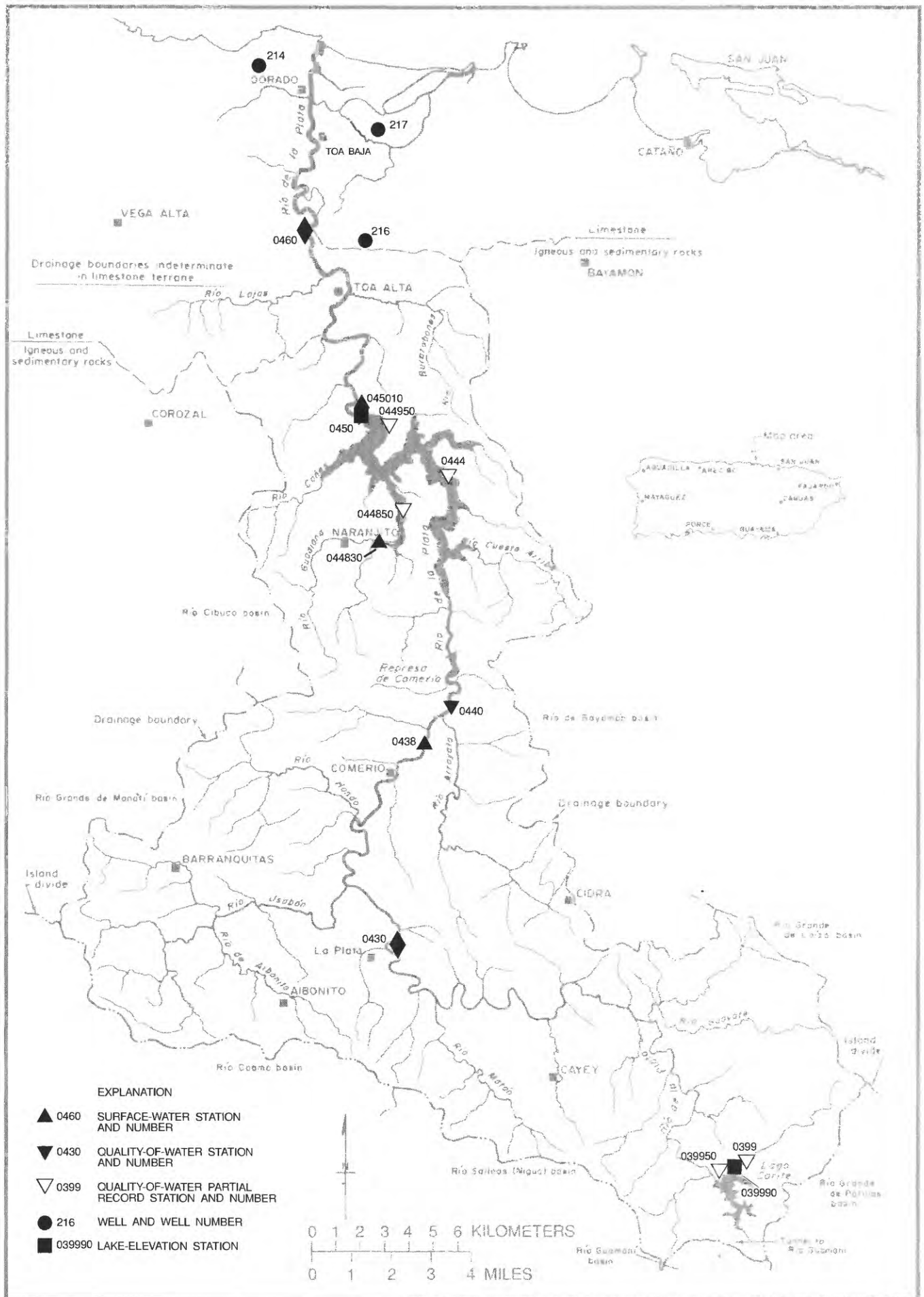


Figure 18.--Río de la Plata basin.

RIO DE LA PLATA BASIN

50039990 LAGO CARITE AT GATE TOWER

LOCATION.--Lat 18°03'46", long 66°05'58", Hydrologic Unit 21010005, on top of a concrete tower at diversion tunnel on Carite Reservoir, 0.7 mi (1.1 km) northwest from Escuela Carite Chino, 1.2 mi (1.9 km) northeast from Central Hidroeléctrica de Carite Num. 1 and 1.8 mi (2.9 km) northeast from Escuela Segunda Unidad.

DRAINAGE AREA.--8.20 mi² (21.24 km²).

ELEVATION RECORDS

PERIOD OF RECORD.--May 1989 to current year.

GAGE.--Water stage recorder. Datum of gage is mean sea level.

REMARKS.--Lago Carite Dam was completed in 1913. The operation of the reservoir is controlled by the utilization of water to meet the demands for domestic, industrial and agricultural purposes in the Guayama Area. The dam is an earthfill with crest elevation of 1,806 ft (550 m) above mean sea level, with a structural height of 104 ft (32 m) and a length of 500 ft (152 m). The dam has a capacity of approximately 11,310 acre-feet (13.9 km³). The Dam is operated by the Puerto Rico Electric and Power Authority. Gage-height and precipitation satellite telemetry at station.

EXTREMES OBSERVED FOR PERIOD OF RECORD.--Maximum elevation 1,787.61 ft (544.86 m), Jan. 5, 1992; minimum elevation, 1,761.48 ft (536.90 m), June 13, 14, 1990.

EXTREMES FOR CURRENT YEAR.--Maximum elevation 1,782.22 ft (543.22 m), July 24; minimum elevation, 1,766.95 ft (538.57 m), Apr. 29.

Capacity Table

(based on Data from Puerto Rico Electric Power Authority)

| Elevation, in feet | Contents, in acre-feet | Elevation, in feet | Contents, in acre-feet |
|--------------------|------------------------|--------------------|------------------------|
| 1,746 | 0 | 1,775 | 6,194 |
| 1,760 | 2,471 | 1,780 | 7,704 |
| 1,769 | 4,561 | 1,790 | 11,048 |

ELEVATION (FEET NGVD), WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993
DAILY OBSERVATION AT 24:00 VALUES

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|
| 1 | 1780.71 | 1776.73 | 1775.35 | 1773.53 | 1773.62 | 1771.50 | 1769.16 | 1767.47 | 1767.86 | 1774.73 | 1781.41 | 1781.19 |
| 2 | 1780.58 | 1776.59 | 1775.28 | 1773.53 | 1773.61 | 1771.53 | 1769.05 | 1768.04 | 1767.85 | 1774.83 | 1781.40 | 1781.15 |
| 3 | 1780.44 | 1776.43 | 1775.31 | 1773.51 | 1773.54 | 1771.42 | 1768.95 | 1768.04 | 1767.72 | 1775.07 | 1781.38 | 1781.11 |
| 4 | 1780.33 | 1776.43 | 1775.26 | 1773.47 | 1773.48 | 1771.35 | 1768.82 | 1767.94 | 1767.69 | 1775.12 | 1781.37 | 1781.06 |
| 5 | 1780.19 | 1776.28 | 1775.18 | 1773.43 | 1773.43 | 1771.35 | 1768.72 | 1767.95 | 1767.66 | 1775.15 | 1781.34 | 1781.08 |
| 6 | 1780.12 | 1776.31 | 1775.06 | 1773.44 | 1773.38 | 1771.27 | 1768.60 | 1767.86 | 1767.58 | 1775.16 | 1781.34 | 1781.05 |
| 7 | 1780.00 | 1776.23 | 1774.96 | 1773.48 | 1773.32 | 1771.20 | 1768.49 | 1767.73 | 1767.56 | 1775.30 | 1781.32 | 1781.01 |
| 8 | 1779.88 | 1776.09 | 1774.86 | 1773.42 | 1773.25 | 1771.14 | 1768.43 | 1767.64 | 1767.52 | 1775.35 | 1781.30 | 1780.97 |
| 9 | 1779.78 | 1775.96 | 1774.73 | 1773.41 | 1773.16 | 1771.08 | 1768.49 | 1767.56 | 1767.44 | 1775.25 | 1781.27 | 1780.99 |
| 10 | 1779.62 | 1775.82 | 1774.59 | 1773.40 | 1773.11 | 1771.02 | 1768.41 | 1767.45 | 1767.46 | 1775.23 | 1781.26 | 1781.02 |
| 11 | 1779.51 | 1775.67 | 1774.49 | 1773.35 | 1773.05 | 1770.97 | 1768.31 | 1767.32 | 1767.42 | 1781.91 | 1781.26 | 1780.98 |
| 12 | 1779.37 | 1775.53 | 1774.35 | 1773.29 | 1773.12 | 1770.89 | 1768.20 | 1767.21 | 1767.37 | 1781.82 | 1781.23 | 1780.92 |
| 13 | 1779.24 | 1775.40 | 1774.25 | 1773.23 | 1773.06 | 1770.86 | 1768.27 | 1767.13 | 1767.37 | 1781.73 | 1781.21 | 1780.87 |
| 14 | 1779.08 | 1775.23 | 1774.14 | 1773.17 | 1772.98 | 1770.79 | 1768.21 | 1768.19 | 1767.51 | 1781.51 | 1781.17 | 1780.83 |
| 15 | 1778.94 | 1775.19 | 1774.01 | 1773.12 | 1772.94 | 1770.68 | 1768.13 | 1768.16 | 1768.04 | 1781.53 | 1781.25 | 1780.83 |
| 16 | 1778.81 | 1775.07 | 1774.06 | 1773.03 | 1772.85 | 1770.59 | 1768.03 | 1768.07 | 1768.10 | 1781.53 | 1781.89 | 1780.83 |
| 17 | 1778.70 | 1774.93 | 1774.02 | 1772.99 | 1772.69 | 1770.50 | 1767.97 | 1767.98 | 1768.14 | 1781.45 | 1781.72 | 1780.78 |
| 18 | 1778.54 | 1774.91 | 1773.91 | 1772.92 | 1772.59 | 1770.42 | 1767.87 | 1767.92 | 1769.78 | 1781.41 | 1781.62 | 1780.75 |
| 19 | 1778.47 | 1774.81 | 1773.84 | 1772.86 | 1772.50 | 1770.38 | 1767.80 | 1767.82 | 1772.82 | 1781.42 | 1781.55 | 1780.66 |
| 20 | 1778.31 | 1774.85 | 1773.76 | 1772.79 | 1772.39 | 1770.32 | 1767.74 | 1767.74 | 1773.49 | 1781.42 | 1781.49 | 1780.63 |
| 21 | 1778.17 | 1774.84 | 1773.68 | 1772.71 | 1772.28 | 1770.22 | 1767.64 | 1767.86 | 1773.63 | 1781.41 | 1781.44 | 1780.59 |
| 22 | 1778.04 | 1774.81 | 1773.64 | 1772.77 | 1772.14 | 1770.12 | 1767.53 | 1767.84 | 1773.96 | 1781.97 | 1781.43 | 1780.55 |
| 23 | 1777.87 | 1774.73 | 1773.57 | 1772.71 | 1772.03 | 1770.03 | 1767.43 | 1767.84 | 1774.11 | 1781.90 | 1781.52 | 1781.19 |
| 24 | 1777.76 | 1774.71 | 1773.51 | 1772.66 | 1772.01 | 1769.93 | 1767.38 | 1767.78 | 1774.18 | 1782.02 | 1781.50 | 1781.21 |
| 25 | 1777.67 | 1774.58 | 1773.45 | 1772.69 | 1771.92 | 1769.84 | 1767.26 | 1767.90 | 1774.32 | 1781.77 | 1781.45 | 1781.19 |
| 26 | 1777.49 | 1774.45 | 1773.59 | 1772.65 | 1771.86 | 1769.75 | 1767.17 | 1767.89 | 1774.42 | 1781.67 | 1781.42 | 1781.14 |
| 27 | 1777.35 | 1774.82 | 1773.57 | 1772.70 | 1771.78 | 1769.64 | 1767.11 | 1767.87 | 1774.50 | 1781.61 | 1781.38 | 1781.15 |
| 28 | 1777.25 | 1774.97 | 1773.50 | 1772.81 | 1771.69 | 1769.55 | 1767.03 | 1767.87 | 1774.57 | 1781.56 | 1781.33 | 1781.17 |
| 29 | 1777.12 | 1775.00 | 1773.47 | 1773.66 | --- | 1769.46 | 1767.46 | 1767.86 | 1774.64 | 1781.50 | 1781.27 | 1781.18 |
| 30 | 1777.01 | 1775.20 | 1773.45 | 1773.66 | --- | 1769.37 | 1767.43 | 1767.86 | 1774.71 | 1781.46 | 1781.27 | 1781.50 |
| 31 | 1776.84 | --- | 1773.45 | 1773.66 | --- | 1769.25 | --- | 1767.84 | --- | 1781.45 | 1781.21 | --- |
| MEAN | 1778.81 | 1775.42 | 1774.20 | 1773.16 | 1772.78 | 1770.53 | 1768.04 | 1767.79 | 1770.31 | 1779.52 | 1781.39 | 1780.99 |
| MAX | 1780.71 | 1776.73 | 1775.35 | 1773.66 | 1773.62 | 1771.53 | 1769.16 | 1768.19 | 1774.71 | 1782.02 | 1781.89 | 1781.50 |
| MIN | 1776.84 | 1774.45 | 1773.45 | 1772.65 | 1771.69 | 1769.25 | 1767.03 | 1767.13 | 1767.37 | 1774.73 | 1781.17 | 1780.55 |

RIO DE LA PLATA BASIN

50043000 RIO DE LA PLATA AT PROYECTO LA PLATA, PR--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Water years 1958 to current year.

WATER-QUALITY DATA, WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993

| DATE | TIME | DIS- CHARGE, INST. CUBIC FEET PER SECOND | SPE- CIFIC CON- DUCT- ANCE (US/CM) | PH WATER WHOLE FIELD (STAND- ARD UNITS) | TEMPER- ATURE WATER (DEG C) | TUR- BID- ITY (NTU) | OXYGEN, DIS- SOLVED (MG/L) | OXYGEN, DIS- SOLVED (PER- CENT SATUR- ATION) | OXYGEN DEMAND, CHEM- ICAL (HIGH LEVEL) (MG/L) | COLI- FORM, FECAL, 0.45 UM-MF (COLS. / 100 ML) | STREP- TOCOCCI FECAL, (COLS. / PER 100 ML) |
|----------|------|--|---|---|--------------------------------------|------------------------------|-------------------------------------|--|---|--|---|
| OCT 1992 | | | | | | | | | | | |
| 08... | 0955 | 29 | 272 | 7.3 | 26.5 | 56 | 6.0 | 75 | 17 | 2700 | 520 |
| DEC | | | | | | | | | | | |
| 03... | 0840 | 50 | 315 | 6.6 | 25.0 | 71 | 5.6 | 68 | 12 | 410 | 640 |
| FEB 1993 | | | | | | | | | | | |
| 11... | 0910 | 12 | 484 | 7.8 | 24.0 | 4.9 | 4.2 | 50 | 17 | K130 | K190 |
| APR | | | | | | | | | | | |
| 13... | 0900 | 15 | 424 | 7.5 | 24.5 | 5.2 | 6.2 | 75 | 13 | K710 | 68 |
| JUN | | | | | | | | | | | |
| 08... | 0935 | 13 | 570 | 7.7 | 27.5 | 3.5 | 7.6 | 97 | <10 | K130 | 220 |
| AUG | | | | | | | | | | | |
| 31... | 1315 | 23 | 387 | 7.9 | 31.0 | 0.30 | 7.0 | 93 | 16 | 1700 | 60 |

| DATE | HARD- NESS TOTAL (MG/L AS CACO3) | HARD- NESS NONCARB WH WAT TOT FLD MG/L AS CACO3 | CALCIUM DIS- SOLVED (MG/L AS CA) | MAGNE- SIUM, DIS- SOLVED (MG/L AS MG) | SODIUM, DIS- SOLVED (MG/L AS NA) | SODIUM AD- SORP- TION RATIO | POTAS- SIUM, DIS- SOLVED (MG/L AS K) | ALKA- LINITY WAT WH TOT FET FIELD MG/L AS CACO3 | SULFIDE TOTAL (MG/L AS S) | SULFATE DIS- SOLVED (MG/L AS SO4) | CHLO- RIDE, DIS- SOLVED (MG/L AS CL) |
|----------|---|---|--|--|--|---|---|---|------------------------------------|---|---|
| OCT 1992 | | | | | | | | | | | |
| 09... | 94 | 4 | 24 | 8.3 | 19 | 0.9 | 2.6 | 95 | <0.5 | 12 | 16 |
| DEC | | | | | | | | | | | |
| 03... | -- | -- | -- | -- | -- | -- | -- | 110 | -- | -- | -- |
| FEB 1993 | | | | | | | | | | | |
| 11... | -- | -- | -- | -- | -- | -- | -- | 160 | -- | -- | -- |
| APR | | | | | | | | | | | |
| 13... | 150 | 0 | 37 | 14 | 34 | 1 | 2.9 | 150 | <0.5 | 19 | 31 |
| JUN | | | | | | | | | | | |
| 08... | -- | -- | -- | -- | -- | -- | -- | 120 | -- | -- | -- |
| AUG | | | | | | | | | | | |
| 31... | 150 | 3 | 34 | 15 | 37 | 1 | 2.6 | 120 | -- | 43 | 190 |

| DATE | FLUO- RIDE, DIS- SOLVED (MG/L AS F) | SILICA, DIS- SOLVED (MG/L AS SiO2) | SOLIDS, SUM OF CONSTI- TUENTS, DIS- SOLVED (MG/L) | SOLIDS, DIS- SOLVED (TONS PER DAY) | RESIDUE TOTAL AT 105 DEG. C, SUS- PENDE (MG/L) | NITRO- GEN, NITRATE TOTAL (MG/L AS N) | NITRO- GEN, NITRITE TOTAL (MG/L AS N) | NITRO- GEN, NO2+NO3 TOTAL (MG/L AS N) | NITRO- GEN, AMMONIA TOTAL (MG/L AS N) | NITRO- GEN, ORGANIC TOTAL (MG/L AS N) |
|----------|--|---|---|---|--|--|--|--|--|--|
| OCT 1992 | | | | | | | | | | |
| 08... | 0.20 | 18 | 156 | 12.2 | 34 | 0.710 | 0.070 | 0.780 | 0.160 | 0.44 |
| DEC | | | | | | | | | | |
| 03... | -- | -- | -- | -- | 10 | 0.940 | 0.060 | 1.00 | 0.020 | 0.48 |
| FEB 1993 | | | | | | | | | | |
| 10... | -- | -- | -- | -- | 7 | 1.88 | 0.020 | 1.90 | 0.020 | 0.68 |
| APR | | | | | | | | | | |
| 13... | 0.20 | 23 | 251 | 10.2 | 43 | 1.09 | 0.110 | 1.10 | 0.120 | 0.48 |
| JUN | | | | | | | | | | |
| 08... | -- | -- | -- | -- | <1 | 1.26 | 0.040 | 1.30 | 0.050 | 0.55 |
| AUG | | | | | | | | | | |
| 31... | 0.20 | 22 | 416 | 25.8 | <1 | 0.950 | 0.050 | 1.00 | 0.040 | 0.66 |

K = non-ideal count

WATER-QUALITY DATA, WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993

[illegible]

RIO DE LA PLATA BASIN

50043800 RIO DE LA PLATA AT COMERIO, PR

LOCATION.--Lat 18°13'23", long 66°13'30", Hydrologic Unit 21010005, on right bank 50 ft (15 m) upstream from bridge off Highway 167 in the Town of Comerio, 0.4 mi (0.6 km) southwest of Comerio High School, and 0.2 mi (0.3 km) northeast of Plaza de Comerio.

DRAINAGE AREA.--109 mi² (282 km²).

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--December 1988 to current year.

GAGE.--Water-stage recorder and crest-stage gage. Datum of gage is 604.2 ft (184.160 m) above mean sea level.

REMARKS.--Records fair except those for estimated daily discharges, which are poor. Gage-height and precipitation satellite telemetry at station.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993
DAILY MEAN VALUES

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|-------|------|------|------|------|------|------|------|-------|-------|-------|------|------|
| 1 | 69 | 31 | 194 | 65 | 99 | 27 | 16 | 411 | 57 | 50 | 83 | 52 |
| 2 | 52 | 30 | 146 | 78 | 64 | 26 | 17 | 975 | 56 | 45 | 77 | 50 |
| 3 | 44 | 31 | 120 | 63 | 58 | 26 | 17 | 699 | 54 | 45 | 74 | 43 |
| 4 | 38 | 34 | 128 | 59 | 54 | 25 | 17 | 179 | 51 | 61 | 71 | 44 |
| 5 | 175 | 40 | 105 | 54 | 48 | 25 | 17 | 107 | 47 | 48 | 65 | 192 |
| 6 | 670 | 35 | 92 | 51 | 44 | 24 | 16 | 86 | 46 | 41 | 65 | 246 |
| 7 | 326 | 52 | 83 | 77 | 39 | 23 | 15 | 79 | 45 | 38 | 63 | 337 |
| 8 | 86 | 41 | 76 | 83 | 37 | 23 | 49 | 70 | 46 | 40 | 59 | 101 |
| 9 | 63 | 31 | 71 | 60 | 36 | 21 | 90 | 116 | 48 | 40 | 57 | 65 |
| 10 | 50 | 30 | 71 | 54 | 36 | 21 | 104 | 96 | 49 | 37 | 55 | 60 |
| 11 | 43 | 46 | 69 | 49 | 36 | 21 | 326 | 83 | 47 | e3060 | 54 | 84 |
| 12 | 40 | 35 | 67 | 47 | 36 | 20 | 192 | 71 | 48 | e1130 | 55 | 59 |
| 13 | 38 | 56 | 67 | 46 | 36 | 20 | 314 | 59 | 50 | e131 | 53 | 48 |
| 14 | 39 | 48 | 72 | 43 | 38 | 19 | 333 | 604 | 48 | e64 | 52 | 45 |
| 15 | 38 | 37 | 107 | 44 | 34 | 20 | 263 | 261 | 57 | e50 | 52 | 43 |
| 16 | 36 | 38 | 81 | 44 | 33 | 22 | 332 | 113 | 169 | e44 | 1080 | 49 |
| 17 | 41 | 34 | 77 | 42 | 33 | 22 | 127 | 87 | 85 | e43 | 369 | 67 |
| 18 | 78 | 41 | 81 | 41 | 32 | 22 | 165 | 72 | 63 | e43 | 143 | 74 |
| 19 | 62 | 47 | 79 | 40 | 32 | 20 | 70 | 66 | e1620 | e43 | 96 | 92 |
| 20 | 107 | 328 | 73 | 41 | 33 | 20 | 64 | 65 | e1770 | e43 | 77 | 53 |
| 21 | 53 | 154 | 71 | 40 | 34 | 20 | 72 | 61 | e312 | e67 | 68 | 69 |
| 22 | 43 | 98 | 72 | 41 | 34 | 18 | 56 | 63 | 373 | e217 | 64 | 51 |
| 23 | 41 | 125 | 83 | 68 | 33 | 17 | 43 | 167 | 217 | 772 | 99 | 841 |
| 24 | 322 | 69 | 79 | 53 | 31 | 18 | 37 | 190 | 105 | 1420 | 82 | 646 |
| 25 | 256 | 48 | 81 | 46 | 30 | 18 | 35 | 110 | 79 | 582 | 65 | 121 |
| 26 | 69 | 43 | 636 | 54 | 30 | 18 | 34 | 257 | 62 | 250 | 57 | 85 |
| 27 | 41 | 1100 | 316 | 48 | 28 | 17 | 32 | 184 | 52 | 181 | 52 | 60 |
| 28 | 33 | 1380 | 98 | 61 | 28 | 17 | 196 | 107 | 49 | 139 | 94 | 53 |
| 29 | 29 | 389 | 69 | 610 | --- | 17 | 1080 | 87 | 50 | 113 | 107 | 80 |
| 30 | 43 | 503 | 57 | 180 | --- | 16 | 733 | 67 | 55 | 102 | 76 | 80 |
| 31 | 32 | --- | 54 | 109 | --- | 16 | --- | 59 | --- | 92 | 59 | --- |
| TOTAL | 3057 | 4974 | 3475 | 2391 | 1106 | 639 | 4862 | 5651 | 5810 | 9031 | 3523 | 3890 |
| MEAN | 98.6 | 166 | 112 | 77.1 | 39.5 | 20.6 | 162 | 182 | 194 | 291 | 114 | 130 |
| MAX | 670 | 1380 | 636 | 610 | 99 | 27 | 1080 | 975 | 1770 | 3060 | 1080 | 841 |
| MIN | 29 | 30 | 54 | 40 | 28 | 16 | 15 | 59 | 45 | 37 | 52 | 43 |
| AC-FT | 6060 | 9870 | 6890 | 4740 | 2190 | 1270 | 9640 | 11210 | 11520 | 17910 | 6990 | 7720 |
| CFSM | .91 | 1.53 | 1.03 | .71 | .36 | .19 | 1.49 | 1.68 | 1.78 | 2.69 | 1.05 | 1.20 |
| IN. | 1.05 | 1.71 | 1.19 | .82 | .38 | .22 | 1.67 | 1.94 | 1.99 | 3.10 | 1.21 | 1.33 |

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1989 - 1993, BY WATER YEAR (WY)

| | | | | | | | | | | | | |
|------|------|------|------|------|------|------|------|------|------|------|------|------|
| MEAN | 281 | 96.9 | 58.1 | 192 | 96.3 | 43.0 | 58.3 | 110 | 71.1 | 100 | 65.5 | 214 |
| MAX | 866 | 166 | 112 | 732 | 247 | 75.7 | 162 | 263 | 194 | 291 | 114 | 729 |
| (WY) | 1991 | 1993 | 1993 | 1992 | 1989 | 1989 | 1993 | 1992 | 1993 | 1993 | 1993 | 1989 |
| MIN | 40.6 | 42.6 | 23.9 | 22.8 | 24.4 | 20.6 | 22.3 | 25.3 | 16.0 | 19.0 | 26.5 | 51.2 |
| (WY) | 1992 | 1990 | 1990 | 1990 | 1990 | 1993 | 1991 | 1989 | 1991 | 1989 | 1991 | 1991 |

| SUMMARY STATISTICS | FOR 1992 CALENDAR YEAR | FOR 1993 WATER YEAR | WATER YEARS 1989 - 1993 |
|--------------------------|------------------------|---------------------|-------------------------|
| ANNUAL TOTAL | 53229 | 48409 | |
| ANNUAL MEAN | 145 | 133 | 109 |
| HIGHEST ANNUAL MEAN | | | 133 |
| LOWEST ANNUAL MEAN | | | 45.0 |
| HIGHEST DAILY MEAN | 14600 | 3060 | 14600 |
| LOWEST DAILY MEAN | 14 | 15 | 10 |
| ANNUAL SEVEN-DAY MINIMUM | 16 | 16 | 11 |
| INSTANTANEOUS PEAK FLOW | | 14800 | 127000 |
| INSTANTANEOUS PEAK STAGE | | 12.85 | 29.22 |
| INSTANTANEOUS LOW FLOW | | 15 | 10 |
| ANNUAL RUNOFF (AC-FT) | 105600 | 96020 | 78920 |
| ANNUAL RUNOFF (CFSM) | 1.34 | 1.22 | 1.00 |
| ANNUAL RUNOFF (INCHES) | 18.25 | 16.60 | 13.64 |
| 10 PERCENT EXCEEDS | 136 | 262 | 152 |
| 50 PERCENT EXCEEDS | 40 | 57 | 37 |
| 90 PERCENT EXCEEDS | 21 | 26 | 17 |

e Estimated

RIO DE LA PLATA BASIN

50043800 RIO DE LA PLATA AT COMERIO, PR--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORDS.-- Water years 1989 to current year.

PERIOD OF DAILY RECORD.--

SUSPENDED-SEDIMENT DISCHARGE: October 1989 to September 1993.

INSTRUMENTATION.-- USD-77 and automatic sediment sampler.

REMARKS.--Sediment samples were collected by a local observer on a week basis and during high flow events.

EXTREMES FOR PERIOD OF DAILY RECORD.--

SEDIMENT CONCENTRATION: Maximum daily mean, 8,800 mg/L Jan. 05, 1992; Minimum daily mean, 2 mg/L few days.

SEDIMENT LOADS: Maximum daily mean, 950,000 tons (862,000 tonnes) Jan. 05, 1992; Minimum daily mean, 0.06 ton (0.05 tonne) Aug 20, 1990.

EXTREMES FOR WATER YEAR 1993.--

SEDIMENT CONCENTRATION: Maximum daily mean, 1,340 mg/l June 11, 1993; Minimum daily mean, 2 mg/L several days.

SEDIMENT LOADS: Maximum daily mean, e19,000 tons (e17,200 tonnes) July 11, 1993; Minimum daily mean .15 tons (.14 tonnes) Mar. 08, 1993.

SEDIMENT DISCHARGE, SUSPENDED (TONS/DAY), WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993

| DAY | MEAN DISCHARGE (CFS) | MEAN CONCENTRATION (MG/L) | SEDIMENT DISCHARGE (TONS/DAY) | MEAN DISCHARGE (CFS) | MEAN CONCENTRATION (MG/L) | SEDIMENT DISCHARGE (TONS/DAY) | MEAN DISCHARGE (CFS) | MEAN CONCENTRATION (MG/L) | SEDIMENT DISCHARGE (TONS/DAY) |
|---------|----------------------------|---------------------------------|-------------------------------------|----------------------------|---------------------------------|-------------------------------------|----------------------------|---------------------------------|-------------------------------------|
| OCTOBER | | | NOVEMBER | | | DECEMBER | | | |
| 1 | 69 | 242 | 48 | 31 | 21 | 1.7 | 194 | 107 | 62 |
| 2 | 52 | 128 | 18 | 30 | 32 | 2.5 | 146 | 86 | 33 |
| 3 | 44 | 60 | 7.4 | 31 | 49 | 4.3 | 120 | 78 | 26 |
| 4 | 38 | 25 | 2.6 | 34 | 62 | 5.9 | 128 | 55 | 19 |
| 5 | 175 | 98 | 190 | 40 | 69 | 7.0 | 105 | 35 | 9.8 |
| 6 | 670 | 505 | 1740 | 35 | 75 | 7.2 | 92 | 21 | 5.1 |
| 7 | 326 | 278 | 328 | 52 | 78 | 11 | 83 | 11 | 2.5 |
| 8 | 86 | 134 | 33 | 41 | 48 | 5.7 | 76 | 5 | 1.0 |
| 9 | 63 | 99 | 18 | 31 | 24 | 2.0 | 71 | 3 | .67 |
| 10 | 50 | 68 | 9.4 | 30 | 17 | 1.5 | 71 | 4 | .76 |
| 11 | 43 | 48 | 5.7 | 46 | 16 | 1.9 | 69 | 4 | .75 |
| 12 | 40 | 34 | 3.6 | 35 | 14 | 1.3 | 67 | 3 | .64 |
| 13 | 38 | 25 | 2.6 | 56 | 33 | 10 | 67 | 2 | .45 |
| 14 | 39 | 19 | 2.0 | 48 | 18 | 2.3 | 72 | 15 | 3.4 |
| 15 | 38 | 94 | 9.8 | 37 | 16 | 1.6 | 107 | 44 | 12 |
| 16 | 36 | 12 | 1.1 | 38 | 15 | 1.5 | 81 | 33 | 7.5 |
| 17 | 41 | 8 | .82 | 34 | 15 | 1.4 | 77 | 15 | 3.1 |
| 18 | 78 | 95 | 36 | 41 | 15 | 1.8 | 81 | 15 | 3.1 |
| 19 | 62 | 180 | 33 | 47 | 15 | 1.8 | 79 | 55 | 11 |
| 20 | 107 | 74 | 24 | 328 | 155 | 189 | 73 | 105 | 21 |
| 21 | 53 | 23 | 3.7 | 154 | 117 | 56 | 71 | 124 | 24 |
| 22 | 43 | 17 | 1.9 | 98 | 88 | 22 | 72 | 124 | 24 |
| 23 | 41 | 16 | 1.8 | 125 | 62 | 22 | 83 | 124 | 26 |
| 24 | 322 | 176 | 500 | 69 | 30 | 6.1 | 79 | 124 | 26 |
| 25 | 256 | 307 | 237 | 48 | 19 | 2.5 | 81 | 124 | 27 |
| 26 | 69 | 165 | 35 | 43 | 18 | 2.1 | 636 | 445 | 1760 |
| 27 | 41 | 90 | 11 | 1100 | 544 | 5150 | 316 | 178 | 224 |
| 28 | 33 | 36 | 3.2 | 1380 | 534 | 2990 | 98 | 47 | 13 |
| 29 | 29 | 27 | 2.1 | 389 | 225 | 253 | 69 | 28 | 5.3 |
| 30 | 43 | 23 | 2.7 | 503 | 297 | 449 | 57 | 24 | 3.7 |
| 31 | 32 | 20 | 1.8 | --- | --- | --- | 54 | 28 | 4.0 |
| TOTAL | 3057 | --- | 3313.22 | 4974 | --- | 9214.1 | 3475 | --- | 2359.77 |

RIO DE LA PLATA BASIN

50043800 RIO DE LA PLATA AT COMERIO, PR--Continued

SEDIMENT DISCHARGE, SUSPENDED (TONS/DAY), WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993

| DAY | MEAN DISCHARGE (CFS) | MEAN CONCEN- TRATION (MG/L) | SEDIMENT DISCHARGE (TONS/DAY) | MEAN DISCHARGE (CFS) | MEAN CONCEN- TRATION (MG/L) | SEDIMENT DISCHARGE (TONS/DAY) | MEAN DISCHARGE (CFS) | MEAN CONCEN- TRATION (MG/L) | SEDIMENT DISCHARGE (TONS/DAY) |
|---------|----------------------------|--------------------------------------|-------------------------------------|----------------------------|--------------------------------------|-------------------------------------|----------------------------|--------------------------------------|-------------------------------------|
| JANUARY | | | FEBRUARY | | | MARCH | | | |
| 1 | 65 | 34 | 6.3 | 99 | 48 | 14 | 27 | 13 | .93 |
| 2 | 78 | 36 | 8.3 | 64 | 37 | 6.4 | 26 | 11 | .74 |
| 3 | 63 | 17 | 2.9 | 58 | 24 | 3.7 | 26 | 8 | .57 |
| 4 | 59 | 12 | 1.9 | 54 | 11 | 1.6 | 25 | 6 | .45 |
| 5 | 54 | 15 | 2.1 | 48 | 6 | .84 | 25 | 5 | .33 |
| 6 | 51 | 18 | 2.4 | 44 | 5 | .66 | 24 | 4 | .25 |
| 7 | 77 | 33 | 9.0 | 39 | 5 | .52 | 23 | 3 | .18 |
| 8 | 83 | 37 | 8.9 | 37 | 4 | .45 | 23 | 2 | .15 |
| 9 | 60 | 23 | 3.8 | 36 | 4 | .38 | 21 | 3 | .20 |
| 10 | 54 | 15 | 2.0 | 36 | 3 | .34 | 21 | 4 | .22 |
| 11 | 49 | 10 | 1.3 | 36 | 3 | .34 | 21 | 5 | .30 |
| 12 | 47 | 6 | .83 | 36 | 4 | .38 | 20 | 8 | .46 |
| 13 | 46 | 24 | 2.9 | 36 | 4 | .43 | 20 | 11 | .57 |
| 14 | 43 | 4 | .48 | 38 | 4 | .47 | 19 | 12 | .61 |
| 15 | 44 | 4 | .48 | 34 | 3 | .32 | 20 | 12 | .63 |
| 16 | 44 | 4 | .47 | 33 | 4 | .35 | 22 | 12 | .69 |
| 17 | 42 | 3 | .40 | 33 | 6 | .53 | 22 | 11 | .67 |
| 18 | 41 | 3 | .33 | 32 | 8 | .74 | 22 | 10 | .54 |
| 19 | 40 | 4 | .48 | 32 | 10 | .88 | 20 | 8 | .43 |
| 20 | 41 | 11 | 1.3 | 33 | 11 | .94 | 20 | 6 | .32 |
| 21 | 40 | 9 | .96 | 34 | 11 | 1.0 | 20 | 6 | .35 |
| 22 | 41 | 6 | .68 | 34 | 12 | 1.1 | 18 | 9 | .45 |
| 23 | 68 | 5 | .92 | 33 | 12 | 1.1 | 17 | 10 | .46 |
| 24 | 53 | 4 | .64 | 31 | 12 | 1.0 | 18 | 10 | .47 |
| 25 | 46 | 4 | .49 | 30 | 12 | .98 | 18 | 10 | .48 |
| 26 | 54 | 3 | .48 | 30 | 13 | 1.0 | 18 | 11 | .49 |
| 27 | 48 | 3 | .39 | 28 | 14 | 1.1 | 17 | 14 | .62 |
| 28 | 61 | 17 | .42 | 28 | 14 | 1.0 | 17 | 16 | .73 |
| 29 | 610 | 264 | 861 | --- | --- | --- | 17 | 25 | 1.1 |
| 30 | 180 | 46 | 22 | --- | --- | --- | 16 | 41 | 1.8 |
| 31 | 109 | 75 | 25 | --- | --- | --- | 16 | 59 | 2.6 |
| TOTAL | 2391 | --- | 1011.13 | 1106 | --- | 42.55 | 639 | --- | 18.79 |

RIO DE LA PLATA BASIN

50043800 RIO DE LA PLATA AT COMERIO, PR--Continued

SEDIMENT DISCHARGE, SUSPENDED (TONS/DAY), WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993

| DAY | MEAN DISCHARGE (CFS) | MEAN CONCEN- TRATION (MG/L) | SEDIMENT DISCHARGE (TONS/DAY) | MEAN DISCHARGE (CFS) | MEAN CONCEN- TRATION (MG/L) | SEDIMENT DISCHARGE (TONS/DAY) | MEAN DISCHARGE (CFS) | MEAN CONCEN- TRATION (MG/L) | SEDIMENT DISCHARGE (TONS/DAY) |
|-------|----------------------------|--------------------------------------|-------------------------------------|----------------------------|--------------------------------------|-------------------------------------|----------------------------|--------------------------------------|-------------------------------------|
| APRIL | | | MAY | | | JUNE | | | |
| 1 | 16 | 82 | 3.6 | 411 | 332 | 753 | 57 | 33 | 5.0 |
| 2 | 17 | 92 | 4.2 | 975 | 579 | 2330 | 56 | 26 | 3.9 |
| 3 | 17 | 74 | 3.4 | 699 | 455 | 1220 | 54 | 28 | 4.0 |
| 4 | 17 | 48 | 2.2 | 179 | 95 | 51 | 51 | 38 | 5.0 |
| 5 | 17 | 30 | 1.4 | 107 | 51 | 15 | 47 | 47 | 6.0 |
| 6 | 16 | 19 | .81 | 86 | 17 | 3.8 | 46 | 48 | 6.0 |
| 7 | 15 | 11 | .42 | 79 | 29 | 6.0 | 45 | 45 | 5.4 |
| 8 | 49 | 22 | 6.5 | 70 | 28 | 5.4 | 46 | 42 | 5.1 |
| 9 | 90 | 41 | 13 | 116 | 52 | 22 | 48 | 38 | 5.0 |
| 10 | 104 | 53 | 19 | 96 | 28 | 7.0 | 49 | 35 | 4.5 |
| 11 | 326 | 338 | 573 | 83 | 39 | 8.7 | 47 | 32 | 3.9 |
| 12 | 192 | 491 | 288 | 71 | 46 | 8.6 | 48 | 29 | 3.6 |
| 13 | 314 | 390 | 348 | 59 | 45 | 7.4 | 50 | 26 | 3.4 |
| 14 | 333 | 202 | 214 | 604 | 393 | 1460 | 48 | 23 | 2.9 |
| 15 | 263 | 145 | 179 | 261 | 129 | 114 | 57 | 22 | 3.6 |
| 16 | 332 | 182 | 192 | 113 | 93 | 29 | 169 | 87 | 52 |
| 17 | 127 | 102 | 39 | 87 | 85 | 19 | 85 | 38 | 9.5 |
| 18 | 165 | 144 | 73 | 72 | 80 | 15 | 63 | 27 | 4.7 |
| 19 | 70 | 131 | 27 | 66 | 72 | 13 | e1620 | 1340 | e7290 |
| 20 | 64 | 97 | 17 | 65 | 57 | 9.9 | e1770 | 699 | e5540 |
| 21 | 72 | 85 | 15 | 61 | 40 | 6.6 | e312 | 106 | e97 |
| 22 | 56 | 63 | 9.1 | 63 | 28 | 4.8 | 373 | 205 | 322 |
| 23 | 43 | 46 | 5.5 | 167 | 86 | 78 | 217 | 123 | 92 |
| 24 | 37 | 34 | 3.4 | 190 | 104 | 68 | 105 | 74 | 22 |
| 25 | 35 | 25 | 2.4 | 110 | 51 | 16 | 79 | 72 | 15 |
| 26 | 34 | 19 | 1.7 | 257 | 124 | 124 | 62 | 71 | 11 |
| 27 | 32 | 15 | 1.3 | 184 | 104 | 60 | 52 | 69 | 9.4 |
| 28 | 196 | 113 | 204 | 107 | 210 | 65 | 49 | 68 | 8.9 |
| 29 | 1080 | 872 | 6790 | 87 | 63 | 14 | 50 | 64 | 8.5 |
| 30 | 733 | 463 | 1210 | 67 | 55 | 9.9 | 55 | 54 | 7.6 |
| 31 | --- | --- | --- | 59 | 44 | 7.1 | --- | --- | --- |
| TOTAL | 4862 | --- | 10246.93 | 5651 | --- | 6551.2 | 5810 | --- | 13556.9 |

e Estimated

RIO DE LA PLATA BASIN

50043800 RIO DE LA PLATA AT COMERIO, PR--Continued

SEDIMENT DISCHARGE, SUSPENDED (TONS/DAY), WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993

| DAY | MEAN DISCHARGE (CFS) | MEAN CONCENTRATION (MG/L) | SEDIMENT DISCHARGE (TONS/DAY) | MEAN DISCHARGE (CFS) | MEAN CONCENTRATION (MG/L) | SEDIMENT DISCHARGE (TONS/DAY) | MEAN DISCHARGE (CFS) | MEAN CONCENTRATION (MG/L) | SEDIMENT DISCHARGE (TONS/DAY) |
|-------|----------------------------|---------------------------------|-------------------------------------|----------------------------|---------------------------------|-------------------------------------|----------------------------|---------------------------------|-------------------------------------|
| | JULY | | | AUGUST | | | SEPTEMBER | | |
| 1 | 50 | 42 | 5.4 | 83 | 8 | 1.8 | 52 | 109 | 15 |
| 2 | 45 | 33 | 4.1 | 77 | 8 | 1.7 | 50 | 106 | 14 |
| 3 | 45 | 26 | 3.2 | 74 | 8 | 1.7 | 43 | 103 | 12 |
| 4 | 61 | 18 | 3.1 | 71 | 10 | 1.8 | 44 | 100 | 12 |
| 5 | 48 | 14 | 1.8 | 65 | 11 | 1.9 | 192 | 173 | 195 |
| 6 | 41 | 8 | .96 | 65 | 11 | 1.9 | 246 | 136 | 153 |
| 7 | 38 | 5 | .52 | 63 | 10 | 1.6 | 337 | 200 | 376 |
| 8 | 40 | 4 | .41 | 59 | 7 | 1.1 | 101 | 86 | 25 |
| 9 | 40 | 4 | .42 | 57 | 5 | .76 | 65 | 72 | 13 |
| 10 | 37 | 3 | .36 | 55 | 4 | .59 | 60 | 61 | 9.8 |
| 11 | e3060 | 863 | e19000 | 54 | 4 | .58 | 84 | 40 | 9.3 |
| 12 | e1130 | 698 | e5810 | 55 | 4 | .58 | 59 | 28 | 4.5 |
| 13 | e131 | 84 | e35 | 53 | 4 | .56 | 48 | 25 | 3.1 |
| 14 | e64 | 58 | e11 | 52 | 9 | 1.3 | 45 | 27 | 3.3 |
| 15 | e50 | 42 | e5.7 | 52 | 39 | 5.7 | 43 | 31 | 3.7 |
| 16 | e44 | 32 | e3.8 | 1080 | 442 | 2450 | 49 | 35 | 4.5 |
| 17 | e43 | 23 | e2.7 | 369 | 222 | 288 | 67 | 37 | 7.2 |
| 18 | e43 | 15 | e1.7 | 143 | 131 | 52 | 74 | 27 | 5.3 |
| 19 | e43 | 9 | e1.0 | 96 | 123 | 32 | 92 | 33 | 8.3 |
| 20 | e43 | 6 | e.76 | 77 | 117 | 24 | 53 | 22 | 3.2 |
| 21 | e67 | 22 | e9.5 | 68 | 113 | 20 | 69 | 32 | 6.7 |
| 22 | e217 | 119 | e110 | 64 | 112 | 20 | 51 | 26 | 3.7 |
| 23 | 772 | 439 | 1060 | 99 | 111 | 31 | 841 | 490 | 5500 |
| 24 | 1420 | 805 | 4540 | 82 | 107 | 25 | 646 | 415 | 1450 |
| 25 | 582 | 246 | 549 | 65 | 87 | 15 | 121 | 65 | 23 |
| 26 | 250 | 35 | 25 | 57 | 58 | 8.7 | 85 | 42 | 9.5 |
| 27 | 181 | 19 | 9.5 | 52 | 58 | 8.4 | 60 | 33 | 5.3 |
| 28 | 139 | 15 | 5.5 | 94 | 111 | 29 | 53 | 24 | 3.3 |
| 29 | 113 | 13 | 4.0 | 107 | 116 | 36 | 80 | 16 | 3.4 |
| 30 | 102 | 11 | 2.9 | 76 | 114 | 25 | 80 | 65 | 15 |
| 31 | 92 | 8 | 2.1 | 59 | 112 | 17 | --- | --- | --- |
| TOTAL | 9031 | --- | 31209.43 | 3523 | --- | 3104.67 | 3890 | --- | 7897.1 |
| YEAR | 48409 | | 88525.79 | | | | | | |

e Estimated

RIO DE LA PLATA BASIN

50043800 RIO DE LA PLATA AT COMERIO, PR--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993

PARTICLE-SIZE DISTRIBUTION OF SUSPENDED SEDIMENT

| DATE | TIME | DIS- CHARGE, INST. CUBIC FEET PER SECOND | SEDI- MENT, DIS- CHARGE, SUS- PENDE (MG/L) | SEDI- MENT, DIS- CHARGE, SUS- PENDE (T/DAY) | SED. SUSP. FALL DIAM. PERCENT FINER THAN .002 MM | SED. SUSP. FALL DIAM. PERCENT FINER THAN .004 MM | SED. SUSP. FALL DIAM. PERCENT FINER THAN .008 MM |
|----------|------|--|--|---|---|---|---|
| APR 1993 | | | | | | | |
| 29... | 1630 | 1630 | 5680 | 25000 | 29 | 40 | 48 |
| 29... | 1720 | 4760 | 3990 | 51300 | 44 | 53 | 59 |
| MAY | | | | | | | |
| 01... | 1815 | 1480 | 2120 | 8470 | 53 | 60 | 64 |
| JUN | | | | | | | |
| 19... | 0620 | 2030 | 2030 | 11100 | 46 | 52 | 57 |
| JUL | | | | | | | |
| 11... | 1445 | 13100 | 5430 | 192000 | 41 | 49 | 56 |
| 11... | 1510 | 14800 | 21600 | 863000 | 14 | 17 | 19 |

| DATE | SED. SUSP. FALL DIAM. PERCENT FINER THAN .016 MM | SED. SUSP. FALL DIAM. PERCENT FINER THAN .031 MM | SED. SUSP. SIEVE DIAM. PERCENT FINER THAN .062 MM | SED. SUSP. SIEVE DIAM. PERCENT FINER THAN .125 MM | SED. SUSP. SIEVE DIAM. PERCENT FINER THAN .250 MM | SED. SUSP. SIEVE DIAM. PERCENT FINER THAN .500 MM | SED. SUSP. SIEVE DIAM. PERCENT FINER THAN 1.00 MM |
|----------|---|---|--|--|--|--|--|
| APR 1993 | | | | | | | |
| 29... | 58 | 70 | 82 | 92 | 97 | 99 | 100 |
| 29... | 71 | 81 | 91 | 98 | 99 | 99.6 | 100 |
| MAY | | | | | | | |
| 01... | 76 | 83 | 96 | 99 | 100 | 100 | 100 |
| JUN | | | | | | | |
| 19... | 67 | 76 | 91 | 98 | 99 | 99.5 | 100 |
| JUL | | | | | | | |
| 11... | 69 | 79 | 92 | 97 | 99 | 99.6 | 100 |
| 11... | 24 | 31 | 41 | 57 | 78 | 96 | 99 |

RIO DE LA PLATA BASIN

50043800 RIO DE LA PLATA AT COMERIO, PR--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993

SILT AND CLAY PERCENT OF SUSPENDED SEDIMENT

| DATE | TIME | STREAM- FLOW, INSTAN- TANEOUS (CFS) | SEDI- MENT, SUS- PENDEED (MG/L) | SEDI- MENT, DIS- CHARGE, SUS- PENDEED (T/DAY) | SED. SUSP. SIEVE DIAM. PERCENT FINER THAN .062 MM |
|----------|------|---|---|---|--|
| OCT 1992 | | | | | |
| 19... | 0830 | 53 | 360 | 52 | 99 |
| APR 1993 | | | | | |
| 05... | 1510 | 17 | 320 | 15 | 99 |
| 21... | 1315 | 58 | 58 | 9.1 | 91 |
| 29... | 1630 | 1630 | 734 | 3230 | 92 |
| 29... | 1810 | 3450 | 5930 | 55200 | 79 |
| 29... | 2320 | 2220 | 831 | 4980 | 94 |
| MAY | | | | | |
| 01... | 1840 | 1520 | 1510 | 6200 | 96 |
| 03... | 0730 | 837 | 299 | 676 | 98 |
| JUN | | | | | |
| 18... | 1930 | 58 | 3420 | 536 | 91 |
| 19... | 0840 | 1540 | 1700 | 7070 | 99 |
| 20... | 1315 | 1220 | 191 | 629 | 98 |
| JUL | | | | | |
| 11... | 1345 | 5200 | 3690 | 51800 | 86 |
| 11... | 1815 | 5790 | 1460 | 25600 | 97 |
| AUG | | | | | |
| 16... | 1230 | 149 | 2970 | 1190 | 73 |

RIO DE LA PLATA BASIN

50044000 RIO DE LA PLATA NEAR COMERIO, PR

WATER-QUALITY RECORDS

LOCATION.--Lat 18°14'33", long 66°12'28", at bridge on Highway 156, 0.56 mi (0.9 km) upstream from dam, about 2.0 mi (3.2 km) northeast of Comerio plaza.

DRAINAGE AREA.--139 mi² (360 km²), excludes 8.2 mi² (21.1 km²) upstream from Carite Reservoir, the flow of which is diverted to Río Guamaní.

PERIOD OF RECORD.--Water years 1979 to current year.

WATER-QUALITY DATA, WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993

| DATE | TIME | DIS-CHARGE, INST. CUBIC FEET PER SECOND | SPE-CIFIC CON-DUCT-ANCE (US/CM) | PH WATER WHOLE FIELD (STAND-ARD UNITS) | TEMPER-ATURE WATER (DEG C) | TUR-BID-ITY (NTU) | OXYGEN, DIS-SOLVED (MG/L) | OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION) | OXYGEN DEMAND, CHEM-ICAL (HIGH LEVEL) (MG/L) | COLI-FORM, FECAL, UM-MF (COLS. / 100 ML) | STREP-TOCOCCI FECAL, (COLS. PER 100 ML) |
|-----------|------|---|---------------------------------|--|----------------------------|-------------------|---------------------------|---|--|--|---|
| OCT 1992 | | | | | | | | | | | |
| 14... | 1025 | 44 | 358 | 8.0 | 26.0 | 15 | 7.8 | 95 | 15 | K10000 | 3200 |
| DEC 08... | 0955 | 57 | 381 | 7.5 | 23.5 | 19 | 7.2 | 84 | <10 | 2700 | K1200 |
| FEB 1993 | | | | | | | | | | | |
| 04... | 0940 | 75 | 338 | 8.0 | 21.0 | 11 | 5.4 | 63 | <10 | K740 | 340 |
| APR 07... | 0835 | 20 | 418 | 7.9 | 24.5 | 3.1 | 8.4 | 100 | <10 | 510 | K190 |
| MAY 26... | 0950 | 193 | 352 | 7.7 | 23.5 | 20 | 8.0 | 96 | 16 | 2100 | 2600 |
| SEP 20... | 1300 | 86 | 375 | 7.9 | 27.5 | 66 | 7.6 | 97 | 18 | K800 | K1400 |

| DATE | HARD-NESS TOTAL (MG/L AS CaCO3) | HARD-NESS NONCARB WH WAT TOT FLD (MG/L AS CaCO3) | CALCIUM DIS-SOLVED (MG/L AS Ca) | MAGNE-SIUM, DIS-SOLVED (MG/L AS Mg) | SODIUM, DIS-SOLVED (MG/L AS Na) | SODIUM AD-SORP-TION RATIO | POTAS-SIUM, DIS-SOLVED (MG/L AS K) | ALKA-LINITY TOT FET FIELD (MG/L AS CaCO3) | SULFIDE TOTAL (MG/L AS S) | SULFATE DIS-SOLVED (MG/L AS SO4) | CHLO-RIDE, DIS-SOLVED (MG/L AS Cl) |
|-----------|---------------------------------|--|---------------------------------|-------------------------------------|---------------------------------|---------------------------|------------------------------------|---|---------------------------|----------------------------------|------------------------------------|
| OCT 1992 | | | | | | | | | | | |
| 14... | 140 | 3 | 34 | 14 | 27 | 1.0 | 2.7 | 130 | <0.5 | 17 | 27 |
| DEC 08... | -- | -- | -- | -- | -- | -- | -- | 140 | -- | -- | -- |
| FEB 1993 | | | | | | | | | | | |
| 04... | -- | -- | -- | -- | -- | -- | -- | 130 | -- | -- | -- |
| APR 07... | 160 | 9 | 36 | 16 | 26 | 0.9 | 2.8 | 160 | <0.5 | 19 | 32 |
| MAY 26... | -- | -- | -- | -- | -- | -- | -- | 130 | -- | -- | -- |
| SEP 20... | 120 | 0 | 27 | 12 | 18 | 0.7 | 4.0 | 140 | -- | 13 | 19 |

| DATE | FLUO-RIDE, DIS-SOLVED (MG/L AS F) | SILICA, DIS-SOLVED (MG/L AS SiO2) | SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L) | SOLIDS, DIS-SOLVED (TONS PER DAY) | RESIDUE TOTAL AT 105 DEG. C, SUS-PENDED (MG/L) | NITRO-GEN, NITRATE TOTAL (MG/L AS N) | NITRO-GEN, NITRITE TOTAL (MG/L AS N) | NITRO-GEN, NO2+NO3 TOTAL (MG/L AS N) | NITRO-GEN, AMMONIA TOTAL (MG/L AS N) | NITRO-GEN, ORGANIC TOTAL (MG/L AS N) |
|-----------|-----------------------------------|-----------------------------------|---|-----------------------------------|--|--------------------------------------|--------------------------------------|--------------------------------------|--------------------------------------|--------------------------------------|
| OCT 1992 | | | | | | | | | | |
| 14... | 0.10 | 27 | 233 | 27.7 | 3 | 0.640 | 0.030 | 0.670 | 0.050 | 0.25 |
| DEC 08... | -- | -- | -- | -- | 15 | 0.980 | 0.020 | 1.00 | 0.030 | 0.57 |
| FEB 1993 | | | | | | | | | | |
| 04... | -- | -- | -- | -- | 8 | 1.33 | 0.070 | 1.40 | 0.170 | 8.4 |
| APR 07... | 0.20 | 28 | 256 | 13.8 | 1 | 1.33 | 0.070 | 1.40 | 0.090 | 1.0 |
| MAY 26... | -- | -- | -- | -- | 21 | 0.710 | 0.090 | 0.800 | 0.170 | 1.7 |
| SEP 20... | 0.20 | 27 | 191 | 44.4 | 48 | 0.980 | 0.020 | 1.00 | 0.040 | 0.56 |

K = non-ideal count

RIO DE LA PLATA BASIN

50044000 RIO DE LA PLATA NEAR COMERIO, PR--Continue

WATER-QUALITY DATA, WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993

| DATE | NITRO- GEN, AM- MONIA + ORGANIC TOTAL (MG/L AS N) | NITRO- GEN, TOTAL (MG/L AS N) | NITRO- GEN, TOTAL (MG/L AS NO3) | PHOS- PHORUS TOTAL (MG/L AS P) | ARSENIC TOTAL (UG/L AS AS) | BARIUM, TOTAL RECOV- ERABLE (UG/L AS BA) | BORON, TOTAL RECOV- ERABLE (UG/L AS B) | CADMIUM TOTAL RECOV- ERABLE (UG/L AS CD) | CHRO- MIUM, TOTAL RECOV- ERABLE (UG/L AS CR) | COPPER, TOTAL RECOV- ERABLE (UG/L AS CU) |
|----------|---|---|---|--|-------------------------------------|---|---|---|--|---|
| OCT 1992 | | | | | | | | | | |
| 14... | 0.30 | 0.97 | 4.3 | 0.180 | 2 | <100 | 50 | <1 | 8 | <10 |
| DEC | | | | | | | | | | |
| 08... | 0.60 | 1.6 | 7.1 | 0.240 | -- | -- | -- | -- | -- | -- |
| FEB 1993 | | | | | | | | | | |
| 04... | 8.6 | 10 | 44 | 0.72 | -- | -- | -- | -- | -- | -- |
| APR | | | | | | | | | | |
| 07... | 1.1 | 2.5 | 11 | 0.200 | 2 | <100 | 70 | <1 | <1 | <10 |
| MAY | | | | | | | | | | |
| 26... | 1.9 | 2.7 | 12 | 0.210 | -- | -- | -- | -- | -- | -- |
| SEP | | | | | | | | | | |
| 20... | 0.60 | 1.6 | 17 | 0.190 | -- | -- | -- | -- | -- | -- |

[illegible]

RIO DE LA PLATA BASIN

50044830 RIO GUADIANA AT GUADIANA, PR

LOCATION.--Lat 18°18'08", long 66°13'24", Hydrologic Unit 21010005, at left bank downstream side of river, 1.3 mi (2.1 km) East of Plaza de Naranjito, 0.9 mi (1.4 km) west from intersection of roads 167 and 164 at km 8.9 and 2.9 mi (4.7 km) northwest from Represa Comerio.

DRAINAGE AREA.--9.19 mi² (23.80 km²).

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--July 1990 to current year.

GAGE.--Water-stage recorder and crest-stage gage. Elevation of gage is 230 ft (70 m), from topographic map.

REMARKS.--Records fair. Gage-height and precipitation satellite telemetry at station.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993
DAILY MEAN VALUES

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|-------|-------|-------|-------|-------|-------|-------|--------|-------|------|-------|-------|-------|
| 1 | 3.4 | 3.3 | 8.6 | 15 | 13 | 7.1 | 3.8 | 268 | 25 | 15 | 8.7 | 4.9 |
| 2 | 2.7 | 3.2 | 6.9 | 13 | 7.7 | 7.7 | 3.6 | 321 | 21 | 16 | 8.4 | 5.1 |
| 3 | 2.5 | 4.2 | 5.7 | 12 | 9.3 | 6.6 | 3.7 | 122 | 20 | 21 | 7.8 | 4.8 |
| 4 | 2.4 | 28 | 6.1 | 11 | 7.1 | 6.1 | 3.6 | 50 | 18 | 14 | 7.6 | 4.5 |
| 5 | 7.0 | 11 | 4.9 | 25 | 6.3 | 5.8 | 3.9 | 65 | 16 | 12 | 7.7 | 4.7 |
| 6 | 6.5 | 5.3 | 5.1 | 18 | 5.7 | 5.7 | 3.8 | 234 | 15 | 11 | 7.6 | 38 |
| 7 | 3.4 | 5.2 | 4.2 | 65 | 5.3 | 5.4 | 3.9 | 149 | 15 | 30 | 7.4 | 9.4 |
| 8 | 3.5 | 4.4 | 4.1 | 37 | 5.0 | 5.6 | 62 | 58 | 17 | 15 | 7.3 | 5.6 |
| 9 | 3.3 | 4.2 | 4.0 | 18 | 4.8 | 5.4 | 26 | 240 | 16 | 11 | 7.8 | 5.1 |
| 10 | 3.6 | 4.1 | 3.8 | 13 | 4.7 | 5.2 | 16 | 97 | 21 | 11 | 7.2 | 4.9 |
| 11 | 3.3 | 2.9 | 3.8 | 12 | 4.5 | 5.1 | 130 | 60 | 14 | 181 | 6.9 | 4.8 |
| 12 | 3.1 | 8.6 | 3.5 | 12 | 4.6 | 5.1 | 30 | 41 | 13 | 46 | 6.4 | 4.3 |
| 13 | 2.9 | 9.2 | 3.1 | 12 | 4.5 | 4.9 | 156 | 29 | 14 | 20 | 6.1 | 4.4 |
| 14 | 3.1 | 8.1 | 16 | 10 | 4.1 | 4.5 | 159 | 103 | 13 | 14 | 6.3 | 5.4 |
| 15 | 2.9 | 30 | 26 | 9.1 | 4.1 | 4.5 | 124 | 37 | 12 | 14 | 7.1 | 6.9 |
| 16 | 2.7 | 17 | 7.2 | 8.6 | 4.1 | 10 | 145 | 27 | 11 | 12 | 78 | 14 |
| 17 | 18 | 8.5 | 9.7 | 7.8 | 4.4 | 7.7 | 47 | 23 | 10 | 11 | 14 | 9.2 |
| 18 | 23 | 9.7 | 11 | 7.6 | 4.6 | 5.7 | 17 | 18 | 11 | 9.7 | 8.3 | 59 |
| 19 | 7.9 | 8.2 | 7.2 | 7.2 | 4.2 | 4.9 | 10 | 16 | 63 | 9.2 | 7.3 | 100 |
| 20 | 3.8 | 5.8 | 6.7 | 7.2 | 23 | 4.6 | 48 | 15 | 46 | 9.3 | 6.4 | 54 |
| 21 | 3.0 | 4.9 | 5.8 | 6.9 | 12 | 4.5 | 64 | 14 | 17 | 9.7 | 6.2 | 13 |
| 22 | 4.4 | 33 | 10 | 22 | 8.7 | 4.3 | 30 | 29 | 19 | 21 | 8.9 | 9.0 |
| 23 | 30 | 17 | 7.4 | 16 | 8.0 | 6.8 | 14 | 204 | 13 | 27 | 8.5 | 74 |
| 24 | 12 | 11 | 30 | 9.3 | 7.1 | 9.9 | 10 | 78 | 12 | 92 | 6.3 | 32 |
| 25 | 8.3 | 7.0 | 40 | 11 | 6.5 | 6.2 | 8.3 | 81 | 11 | 20 | 5.8 | 12 |
| 26 | 4.8 | 6.0 | 309 | 8.1 | 6.6 | 4.7 | 6.9 | 96 | 10 | 22 | 5.8 | 9.8 |
| 27 | 4.4 | 202 | 78 | 6.8 | 6.7 | 4.5 | 6.3 | 75 | 10 | 16 | 5.7 | 74 |
| 28 | 3.8 | 59 | 93 | 6.7 | 6.3 | 4.3 | 60 | 51 | 34 | 11 | 6.2 | 31 |
| 29 | 4.3 | 18 | 72 | 15 | --- | 4.2 | 222 | 37 | 34 | 10 | 6.2 | 15 |
| 30 | 4.1 | 13 | 39 | 12 | --- | 4.2 | 155 | 33 | 33 | 9.4 | 6.1 | 17 |
| 31 | 3.8 | --- | 22 | 24 | --- | 4.0 | --- | 31 | --- | 9.2 | 5.3 | --- |
| TOTAL | 191.9 | 551.8 | 853.8 | 458.3 | 192.9 | 175.2 | 1572.8 | 2702 | 584 | 729.5 | 295.3 | 635.8 |
| MEAN | 6.19 | 18.4 | 27.5 | 14.8 | 6.89 | 5.65 | 52.4 | 87.2 | 19.5 | 23.5 | 9.53 | 21.2 |
| MAX | 30 | 202 | 309 | 65 | 23 | 10 | 222 | 321 | 63 | 181 | 78 | 100 |
| MIN | 2.4 | 2.9 | 3.1 | 6.7 | 4.1 | 4.0 | 3.6 | 14 | 10 | 9.2 | 5.3 | 4.3 |
| AC-FT | 381 | 1090 | 1690 | 909 | 383 | 348 | 3120 | 5360 | 1160 | 1450 | 586 | 1260 |
| CFSM | .67 | 2.00 | 3.00 | 1.61 | .75 | .61 | 5.70 | 9.48 | 2.12 | 2.56 | 1.04 | 2.31 |
| IN. | .78 | 2.23 | 3.46 | 1.86 | .78 | .71 | 6.37 | 10.94 | 2.36 | 2.95 | 1.20 | 2.57 |

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1990 - 1993, BY WATER YEAR (WY)

| | 1990 | 1991 | 1992 | 1993 | 1990 | 1991 | 1992 | 1993 | 1990 | 1991 | 1992 | 1993 |
|------|------|------|------|------|------|------|------|------|------|------|------|------|
| MEAN | 36.5 | 13.3 | 17.6 | 24.2 | 14.9 | 10.8 | 25.8 | 41.2 | 10.0 | 14.0 | 7.80 | 11.8 |
| MAX | 98.7 | 18.4 | 27.5 | 42.5 | 31.7 | 13.7 | 52.4 | 87.2 | 19.5 | 23.5 | 9.53 | 21.2 |
| (WY) | 1991 | 1993 | 1993 | 1992 | 1991 | 1992 | 1993 | 1993 | 1993 | 1993 | 1993 | 1993 |
| MIN | 4.51 | 7.32 | 5.67 | 14.8 | 6.39 | 5.65 | 11.6 | 7.49 | 5.21 | 4.51 | 5.76 | 3.95 |
| (WY) | 1992 | 1992 | 1992 | 1993 | 1992 | 1993 | 1991 | 1991 | 1991 | 1992 | 1991 | 1991 |

| SUMMARY STATISTICS | FOR 1992 CALENDAR YEAR | FOR 1993 WATER YEAR | WATER YEARS 1990 - 1993 |
|--------------------------|------------------------|---------------------|-------------------------|
| ANNUAL TOTAL | 5596.7 | 8943.3 | |
| ANNUAL MEAN | 15.3 | 24.5 | 19.0 |
| HIGHEST ANNUAL MEAN | | | 24.5 |
| LOWEST ANNUAL MEAN | | | 12.4 |
| HIGHEST DAILY MEAN | 536 Jan 5 | 321 May 2 | 536 Jan 5 1992 |
| LOWEST DAILY MEAN | 2.4 Oct 4 | 2.4 Oct 4 | 2.4 Oct 4 1992 |
| ANNUAL SEVEN-DAY MINIMUM | 2.7 Sep 10 | 3.1 Oct 10 | 2.7 Sep 10 1992 |
| INSTANTANEOUS PEAK FLOW | | 2190 Oct 6 | 6670 Jan 5 1992 |
| INSTANTANEOUS PEAK STAGE | | 9.06 Oct 6 | 13.36 Jan 5 1992 |
| ANNUAL RUNOFF (AC-FT) | 11100 | 17740 | 13750 |
| ANNUAL RUNOFF (CFSM) | 1.66 | 2.67 | 2.06 |
| ANNUAL RUNOFF (INCHES) | 22.65 | 36.20 | 28.05 |
| 10 PERCENT EXCEEDS | 26 | 61 | 33 |
| 50 PERCENT EXCEEDS | 5.1 | 9.3 | 7.2 |
| 90 PERCENT EXCEEDS | 3.1 | 4.1 | 3.3 |

RIO DE LA PLATA BASIN

50044830 RIO GUADIANA AT GUADIANA, PR--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORDS.-- Water years 1990 to current year.

PERIOD OF DAILY RECORD.--

SUSPENDED-SEDIMENT DISCHARGE: August 01, 1990 to September 1993.

INSTRUMENTATION.-- USD-77 and automatic sediment sampler.

EXTREMES FOR PERIOD OF DAILY RECORD.--

SEDIMENT CONCENTRATION: Maximum daily mean, 1,300 mg/L Oct. 16, 1990; Minimum daily mean, 2 mg/L few days.

SEDIMENT LOADS: Maximum daily mean, 18,000 tons (16,300 tonnes) Jan. 05, 1992; Minimum daily mean, 0.00 ton (0.0 tonne) several days.

EXTREMES FOR WATER YEAR 1993.--

| Water Year | Suspended-sediment concentration (mg/L) | | Suspended-sediment discharge (tons per day) | |
|------------|---|------------------|---|--------------------|
| | maximum | minimum | maximum | minimum |
| 1993 | 1,090 (May 02) | 1 (Several days) | 2,920 (May 06) | .01 (Several days) |

SEDIMENT DISCHARGE, SUSPENDED (TONS/DAY), WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993

| DAY | MEAN DISCHARGE (CFS) | MEAN CONCENTRATION (MG/L) | SEDIMENT DISCHARGE (TONS/DAY) | OCTOBER | | | NOVEMBER | | | DECEMBER | | |
|-------|----------------------|---------------------------|-------------------------------|----------------------|---------------------------|-------------------------------|----------------------|---------------------------|-------------------------------|----------------------|---------------------------|-------------------------------|
| | | | | MEAN DISCHARGE (CFS) | MEAN CONCENTRATION (MG/L) | SEDIMENT DISCHARGE (TONS/DAY) | MEAN DISCHARGE (CFS) | MEAN CONCENTRATION (MG/L) | SEDIMENT DISCHARGE (TONS/DAY) | MEAN DISCHARGE (CFS) | MEAN CONCENTRATION (MG/L) | SEDIMENT DISCHARGE (TONS/DAY) |
| 1 | 3.4 | 5 | .06 | 3.3 | 10 | .08 | 8.6 | 8 | .21 | | | |
| 2 | 2.7 | 4 | .03 | 3.2 | 4 | .04 | 6.9 | 13 | .24 | | | |
| 3 | 2.5 | 3 | .02 | 4.2 | 7 | .08 | 5.7 | 8 | .14 | | | |
| 4 | 2.4 | 3 | .01 | 28 | 75 | 9.6 | 6.1 | 9 | .16 | | | |
| 5 | 7.0 | 12 | .84 | 11 | 103 | 3.6 | 4.9 | 10 | .13 | | | |
| 6 | 6.5 | 26 | .58 | 5.3 | 47 | .68 | 5.1 | 11 | .17 | | | |
| 7 | 3.4 | 13 | .13 | 5.2 | 19 | .27 | 4.2 | 9 | .11 | | | |
| 8 | 3.5 | 8 | .07 | 4.4 | 10 | .11 | 4.1 | 9 | .10 | | | |
| 9 | 3.3 | 5 | .04 | 4.2 | 9 | .09 | 4.0 | 10 | .10 | | | |
| 10 | 3.6 | 3 | .03 | 4.1 | 9 | .10 | 3.8 | 16 | .16 | | | |
| 11 | 3.3 | 3 | .03 | 2.9 | 6 | .05 | 3.8 | 22 | .23 | | | |
| 12 | 3.1 | 4 | .04 | 8.6 | 16 | 1.5 | 3.5 | 26 | .25 | | | |
| 13 | 2.9 | 5 | .04 | 9.2 | 15 | .44 | 3.1 | 14 | .13 | | | |
| 14 | 3.1 | 4 | .03 | 8.1 | 12 | .26 | 16 | 35 | 7.9 | | | |
| 15 | 2.9 | 3 | .02 | 30 | 73 | 16 | 26 | 78 | 9.1 | | | |
| 16 | 2.7 | 3 | .02 | 17 | 35 | 2.6 | 7.2 | 41 | .85 | | | |
| 17 | 18 | 39 | 5.3 | 8.5 | 18 | .45 | 9.7 | 27 | .83 | | | |
| 18 | 23 | 80 | 14 | 9.7 | 23 | .60 | 11 | 21 | .68 | | | |
| 19 | 7.9 | 93 | 2.4 | 8.2 | 23 | .54 | 7.2 | 14 | .27 | | | |
| 20 | 3.8 | 40 | .42 | 5.8 | 7 | .11 | 6.7 | 10 | .16 | | | |
| 21 | 3.0 | 19 | .14 | 4.9 | 6 | .09 | 5.8 | 9 | .15 | | | |
| 22 | 4.4 | 10 | .13 | 33 | 62 | 9.2 | 10 | 18 | .67 | | | |
| 23 | 30 | 936 | 276 | 17 | 29 | 1.6 | 7.4 | 15 | .28 | | | |
| 24 | 12 | 184 | 5.9 | 11 | 19 | .69 | 30 | 71 | 11 | | | |
| 25 | 8.3 | 25 | .61 | 7.0 | 9 | .16 | 40 | 90 | 13 | | | |
| 26 | 4.8 | 15 | .21 | 6.0 | 9 | .16 | 309 | 1280 | 2420 | | | |
| 27 | 4.4 | 10 | .11 | 202 | 724 | 1280 | 78 | 206 | 47 | | | |
| 28 | 3.8 | 10 | .09 | 59 | 146 | 30 | 93 | 324 | 122 | | | |
| 29 | 4.3 | 10 | .13 | 18 | 35 | 2.0 | 72 | 154 | 35 | | | |
| 30 | 4.1 | 10 | .10 | 13 | 18 | .61 | 39 | 85 | 10 | | | |
| 31 | 3.8 | 11 | .11 | --- | --- | --- | 22 | 40 | 2.4 | | | |
| TOTAL | 191.9 | --- | 307.64 | 551.8 | --- | 1361.71 | 853.8 | --- | 2683.42 | | | |

RIO DE LA PLATA BASIN

50044830 RIO GUADIANA AT GUADIANA, PR--Continued

SEDIMENT DISCHARGE, SUSPENDED (TONS/DAY), WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993

| DAY | MEAN DISCHARGE (CFS) | MEAN CONCEN- TRATION (MG/L) | SEDIMENT DISCHARGE (TONS/DAY) | MEAN DISCHARGE (CFS) | MEAN CONCEN- TRATION (MG/L) | SEDIMENT DISCHARGE (TONS/DAY) | MEAN DISCHARGE (CFS) | MEAN CONCEN- TRATION (MG/L) | SEDIMENT DISCHARGE (TONS/DAY) |
|---------|----------------------------|--------------------------------------|-------------------------------------|----------------------------|--------------------------------------|-------------------------------------|----------------------------|--------------------------------------|-------------------------------------|
| JANUARY | | | FEBRUARY | | | MARCH | | | |
| 1 | 15 | 26 | 1.1 | 13 | 36 | 1.5 | 7.1 | 11 | .21 |
| 2 | 13 | 17 | .58 | 7.7 | 25 | .52 | 7.7 | 11 | .24 |
| 3 | 12 | 9 | .30 | 9.3 | 18 | .45 | 6.6 | 13 | .21 |
| 4 | 11 | 6 | .19 | 7.1 | 16 | .31 | 6.1 | 12 | .20 |
| 5 | 25 | 46 | 6.4 | 6.3 | 17 | .28 | 5.8 | 12 | .18 |
| 6 | 18 | 35 | 2.1 | 5.7 | 15 | .22 | 5.7 | 10 | .16 |
| 7 | 65 | 165 | 44 | 5.3 | 15 | .20 | 5.4 | 10 | .14 |
| 8 | 37 | 85 | 10 | 5.0 | 13 | .17 | 5.6 | 8 | .12 |
| 9 | 18 | 30 | 1.6 | 4.8 | 12 | .16 | 5.4 | 6 | .09 |
| 10 | 13 | 12 | .42 | 4.7 | 11 | .14 | 5.2 | 6 | .09 |
| 11 | 12 | 5 | .17 | 4.5 | 8 | .10 | 5.1 | 9 | .12 |
| 12 | 12 | 6 | .19 | 4.6 | 6 | .08 | 5.1 | 10 | .14 |
| 13 | 12 | 6 | .20 | 4.5 | 5 | .07 | 4.9 | 10 | .13 |
| 14 | 10 | 7 | .20 | 4.1 | 6 | .07 | 4.5 | 10 | .13 |
| 15 | 9.1 | 10 | .25 | 4.1 | 9 | .09 | 4.5 | 12 | .14 |
| 16 | 8.6 | 10 | .24 | 4.1 | 9 | .10 | 10 | 17 | .54 |
| 17 | 7.8 | 10 | .19 | 4.4 | 10 | .11 | 7.7 | 16 | .33 |
| 18 | 7.6 | 5 | .12 | 4.6 | 10 | .13 | 5.7 | 11 | .17 |
| 19 | 7.2 | 7 | .14 | 4.2 | 11 | .14 | 4.9 | 7 | .09 |
| 20 | 7.2 | 12 | .22 | 23 | 58 | 8.0 | 4.6 | 4 | .05 |
| 21 | 6.9 | 18 | .32 | 12 | 19 | .63 | 4.5 | 4 | .05 |
| 22 | 22 | 49 | 4.3 | 8.7 | 13 | .30 | 4.3 | 4 | .04 |
| 23 | 16 | 33 | 1.8 | 8.0 | 16 | .35 | 6.8 | 16 | .46 |
| 24 | 9.3 | 19 | .45 | 7.1 | 23 | .45 | 9.9 | 17 | .77 |
| 25 | 11 | 13 | .39 | 6.5 | 28 | .51 | 6.2 | 9 | .16 |
| 26 | 8.1 | 6 | .15 | 6.6 | 25 | .43 | 4.7 | 9 | .11 |
| 27 | 6.8 | 4 | .07 | 6.7 | 15 | .27 | 4.5 | 9 | .10 |
| 28 | 6.7 | 5 | .09 | 6.3 | 11 | .19 | 4.3 | 10 | .11 |
| 29 | 15 | 27 | 5.2 | --- | --- | --- | 4.2 | 11 | .13 |
| 30 | 12 | 20 | .83 | --- | --- | --- | 4.2 | 11 | .13 |
| 31 | 24 | 58 | 17 | --- | --- | --- | 4.0 | 8 | .09 |
| TOTAL | 458.3 | --- | 99.21 | 192.9 | --- | 15.97 | 175.2 | --- | 5.63 |

RIO DE LA PLATA BASIN

50044830 RIO GUADIANA AT GUADIANA, PR--Continued

SEDIMENT DISCHARGE, SUSPENDED (TONS/DAY), WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993

| DAY | MEAN DISCHARGE (CFS) | MEAN CONCEN- TRATION (MG/L) | SEDIMENT DISCHARGE (TONS/DAY) | MEAN DISCHARGE (CFS) | MEAN CONCEN- TRATION (MG/L) | SEDIMENT DISCHARGE (TONS/DAY) | MEAN DISCHARGE (CFS) | MEAN CONCEN- TRATION (MG/L) | SEDIMENT DISCHARGE (TONS/DAY) |
|-------|----------------------------|--------------------------------------|-------------------------------------|----------------------------|--------------------------------------|-------------------------------------|----------------------------|--------------------------------------|-------------------------------------|
| APRIL | | | MAY | | | JUNE | | | |
| 1 | 3.8 | 9 | .10 | 268 | 792 | 1250 | 25 | 44 | 3.0 |
| 2 | 3.6 | 14 | .15 | 321 | 1090 | 1220 | 21 | 18 | 1.0 |
| 3 | 3.7 | 18 | .18 | 122 | 279 | 120 | 20 | 13 | .62 |
| 4 | 3.6 | 20 | .19 | 50 | 45 | 6.4 | 18 | 8 | .38 |
| 5 | 3.9 | 17 | .17 | 65 | 159 | 72 | 16 | 6 | .26 |
| 6 | 3.8 | 11 | .10 | 234 | 891 | 2920 | 15 | 5 | .20 |
| 7 | 3.9 | 10 | .10 | 149 | 364 | 198 | 15 | 6 | .23 |
| 8 | 62 | 194 | 194 | 58 | 158 | 36 | 17 | 8 | .39 |
| 9 | 26 | 53 | 6.4 | 240 | 847 | 1020 | 16 | 9 | .39 |
| 10 | 16 | 31 | 2.4 | 97 | 237 | 64 | 21 | 34 | 3.7 |
| 11 | 130 | 433 | 470 | 60 | 106 | 18 | 14 | 28 | 1.0 |
| 12 | 30 | 68 | 9.9 | 41 | 29 | 3.3 | 13 | 30 | 1.1 |
| 13 | 156 | 555 | 1060 | 29 | 28 | 2.1 | 14 | 25 | .82 |
| 14 | 159 | 619 | 850 | 103 | 330 | 298 | 13 | 16 | .53 |
| 15 | 124 | 365 | 336 | 37 | 50 | 5.6 | 12 | 10 | .33 |
| 16 | 145 | 453 | 399 | 27 | 16 | 1.2 | 11 | 7 | .21 |
| 17 | 47 | 109 | 18 | 23 | 13 | .76 | 10 | 10 | .27 |
| 18 | 17 | 28 | 1.3 | 18 | 12 | .56 | 11 | 20 | .98 |
| 19 | 10 | 16 | .48 | 16 | 11 | .43 | 63 | 147 | 27 |
| 20 | 48 | 133 | 47 | 15 | 8 | .32 | 46 | 105 | 17 |
| 21 | 64 | 202 | 77 | 14 | 9 | .34 | 17 | 25 | 1.2 |
| 22 | 30 | 60 | 5.8 | 29 | 62 | 20 | 19 | 30 | 1.5 |
| 23 | 14 | 19 | .73 | 204 | 623 | 1480 | 13 | 43 | 1.6 |
| 24 | 10 | 21 | .52 | 78 | 194 | 45 | 12 | 45 | 1.5 |
| 25 | 8.3 | 35 | .80 | 81 | 209 | 51 | 11 | 43 | 1.3 |
| 26 | 6.9 | 27 | .49 | 96 | 275 | 94 | 10 | 43 | 1.1 |
| 27 | 6.3 | 12 | .21 | 75 | 181 | 37 | 10 | 43 | 1.2 |
| 28 | 60 | 149 | 79 | 51 | 111 | 15 | 34 | 89 | 19 |
| 29 | 222 | 809 | 1350 | 37 | 78 | 8.0 | 34 | 89 | 20 |
| 30 | 155 | 437 | 292 | 33 | 60 | 5.1 | 33 | 95 | 11 |
| 31 | --- | --- | --- | 31 | 67 | 6.9 | --- | --- | --- |
| TOTAL | 1572.8 | --- | 5202.02 | 2702 | --- | 8999.01 | 584 | --- | 118.81 |

RIO DE LA PLATA BASIN

50044830 RIO GUADIANA AT GUADIANA, PR--Continued

SEDIMENT DISCHARGE, SUSPENDED (TONS/DAY), WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993

| DAY | MEAN DISCHARGE (CFS) | MEAN CONCEN- TRATION (MG/L) | SEDIMENT DISCHARGE (TONS/DAY) | MEAN DISCHARGE (CFS) | MEAN CONCEN- TRATION (MG/L) | SEDIMENT DISCHARGE (TONS/DAY) | MEAN DISCHARGE (CFS) | MEAN CONCEN- TRATION (MG/L) | SEDIMENT DISCHARGE (TONS/DAY) |
|-------|----------------------------|--------------------------------------|-------------------------------------|----------------------------|--------------------------------------|-------------------------------------|----------------------------|--------------------------------------|-------------------------------------|
| JULY | | | AUGUST | | | SEPTEMBER | | | |
| 1 | 15 | 31 | 1.3 | 8.7 | 2 | .05 | 4.9 | 5 | .07 |
| 2 | 16 | 27 | 1.9 | 8.4 | 3 | .07 | 5.1 | 4 | .05 |
| 3 | 21 | 52 | 4.4 | 7.8 | 5 | .11 | 4.8 | 2 | .03 |
| 4 | 14 | 19 | .73 | 7.6 | 6 | .13 | 4.5 | 1 | .01 |
| 5 | 12 | 10 | .33 | 7.7 | 5 | .11 | 4.7 | 1 | .02 |
| 6 | 11 | 12 | .34 | 7.6 | 4 | .08 | 38 | 105 | 54 |
| 7 | 30 | 68 | 15 | 7.4 | 4 | .07 | 9.4 | 16 | .53 |
| 8 | 15 | 25 | 1.0 | 7.3 | 6 | .12 | 5.6 | 5 | .08 |
| 9 | 11 | 17 | .50 | 7.8 | 13 | .26 | 5.1 | 5 | .08 |
| 10 | 11 | 20 | .64 | 7.2 | 18 | .36 | 4.9 | 5 | .06 |
| 11 | 181 | 684 | 876 | 6.9 | 16 | .28 | 4.8 | 4 | .06 |
| 12 | 46 | 38 | 7.4 | 6.4 | 9 | .17 | 4.3 | 3 | .04 |
| 13 | 20 | 6 | .35 | 6.1 | 7 | .12 | 4.4 | 3 | .04 |
| 14 | 14 | 8 | .31 | 6.3 | 5 | .09 | 5.4 | 3 | .04 |
| 15 | 14 | 10 | .33 | 7.1 | 14 | .30 | 6.9 | 18 | 1.4 |
| 16 | 12 | 14 | .42 | 78 | 220 | 92 | 14 | 29 | 3.9 |
| 17 | 11 | 23 | .61 | 14 | 26 | 1.2 | 9.2 | 16 | .86 |
| 18 | 9.7 | 24 | .61 | 8.3 | 11 | .22 | 59 | 190 | 109 |
| 19 | 9.2 | 16 | .39 | 7.3 | 8 | .13 | 100 | 373 | 427 |
| 20 | 9.3 | 49 | 1.5 | 6.4 | 8 | .13 | 54 | 117 | 25 |
| 21 | 9.7 | 13 | .55 | 6.2 | 8 | .13 | 13 | 23 | .87 |
| 22 | 21 | 44 | 5.3 | 8.9 | 11 | .43 | 9.0 | 13 | .31 |
| 23 | 27 | 63 | 6.5 | 8.5 | 14 | .35 | 74 | 565 | 661 |
| 24 | 92 | 388 | 309 | 6.3 | 6 | .10 | 32 | 70 | 9.4 |
| 25 | 20 | 28 | 1.8 | 5.8 | 4 | .06 | 12 | 20 | .70 |
| 26 | 22 | 38 | 4.8 | 5.8 | 4 | .06 | 9.8 | 16 | .40 |
| 27 | 16 | 24 | 1.3 | 5.7 | 4 | .06 | 74 | 282 | 298 |
| 28 | 11 | 8 | .24 | 6.2 | 4 | .06 | 31 | 70 | 7.5 |
| 29 | 10 | 6 | .18 | 6.2 | 5 | .09 | 15 | 26 | 1.1 |
| 30 | 9.4 | 5 | .14 | 6.1 | 8 | .13 | 17 | 39 | 3.2 |
| 31 | 9.2 | 3 | .09 | 5.3 | 8 | .11 | --- | --- | --- |
| TOTAL | 729.5 | --- | 1243.96 | 295.3 | --- | 97.58 | 635.8 | --- | 1604.75 |
| YEAR | 8943.3 | | 21739.71 | | | | | | |

RIO DE LA PLATA BASIN

50044830 RIO GUADIANA AT GUADIANA , PR--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993

PARTICLE-SIZE DISTRIBUTION OF SUSPENDED SEDIMENT

| DATE | TIME | DIS- CHARGE, INST. CUBIC FEET PER SECOND | SEDI- MENT, SUS- PENDEDED (MG/L) | SEDI- MENT, DIS- CHARGE, SUS- PENDEDED (T/DAY) | SED. SUSP. FALL DIAM. PERCENT FINER THAN .002 MM | SED. SUSP. FALL DIAM. PERCENT FINER THAN .004 MM | SED. SUSP. FALL DIAM. PERCENT FINER THAN .008 MM |
|----------|------|--|--|--|---|---|---|
| DEC 1992 | | | | | | | |
| 26... | 1235 | 593 | 18800 | 30100 | 22 | 33 | 51 |
| APR 1993 | | | | | | | |
| 14... | 1500 | 141 | 4820 | 1830 | 30 | 40 | 60 |
| 14... | 1610 | 638 | 5170 | 8900 | 31 | 38 | 47 |
| MAY | | | | | | | |
| 01... | 1725 | 1140 | 4770 | 14700 | 34 | 44 | 59 |
| 06... | 2000 | 1820 | 16100 | 79100 | 25 | 32 | 37 |
| 23... | 1325 | 624 | 8110 | 13700 | 23 | 37 | 43 |

| DATE | SED. SUSP. FALL DIAM. PERCENT FINER THAN .016 MM | SED. SUSP. FALL DIAM. PERCENT FINER THAN .031 MM | SED. SUSP. SIEVE DIAM. PERCENT FINER THAN .062 MM | SED. SUSP. SIEVE DIAM. PERCENT FINER THAN .125 MM | SED. SUSP. SIEVE DIAM. PERCENT FINER THAN .250 MM | SED. SUSP. SIEVE DIAM. PERCENT FINER THAN .500 MM | SED. SUSP. SIEVE DIAM. PERCENT FINER THAN 1.00 MM |
|----------|---|---|--|--|--|--|--|
| DEC 1992 | | | | | | | |
| 26... | 51 | 68 | 82 | 93 | 97 | 98.6 | 100 |
| APR 1993 | | | | | | | |
| 14... | 60 | 70 | 84 | 92 | 97 | 99 | 100 |
| 14... | 38 | 67 | 79 | 89 | 95 | 98.7 | 99 |
| MAY | | | | | | | |
| 01... | 68 | 76 | 90 | 96 | 98 | 99 | 100 |
| 06... | 48 | 57 | 70 | 80 | 86 | 90 | 97 |
| 23... | 57 | 70 | 82 | 94 | 98 | 99 | 100 |

RIO DE LA PLATA BASIN

50044830 RIO GUADIANA AT GUADIANA, PR--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993

SILT AND CLAY PERCENT OF SUSPENDED SEDIMENT

| DATE | TIME | STREAM- FLOW, INSTAN- TANEOUS (CFS) | SEDI- MENT, SUS- PENDEDED (MG/L) | SEDI- MENT, DIS- CHARGE, SUS- PENDEDED (T/DAY) | SED. SUSP. SIEVE DIAM. PERCENT FINER THAN .062 MM |
|----------|------|---|--|--|--|
| NOV 1992 | | | | | |
| 13... | 1735 | 10 | 95 | 2.6 | 99 |
| DEC | | | | | |
| 26... | 1255 | 1540 | 9810 | 40790 | 70 |
| 26... | 1650 | 500 | 1040 | 1400 | 92 |
| 28... | 1325 | 60 | 1150 | 186 | 85 |
| 28... | 1450 | 124 | 1330 | 445 | 76 |
| APR 1993 | | | | | |
| 29... | 1900 | 619 | 1390 | 2320 | 89 |
| MAY | | | | | |
| 01... | 1540 | 584 | 3250 | 5120 | 91 |
| 06... | 2115 | 1190 | 3750 | 12050 | 75 |
| 23.. | 1455 | 963 | 1950 | 5070 | 91 |

RIO DE LA PLATA BASIN

50044850 RIO GUADIANA NEAR NARANJITO, PR

WATER-QUALITY RECORDS

LOCATION.--Lat 18°18'39", long 66°13'28", at steel-cross-bridge 0.8 mi (1.3 km) northwest of Highway 164, 1.2 mi (1.9 km) upstream from mouth and about 2.0 mi (3.2 km) northeast of Naranjito plaza.

DRAINAGE AREA.--4.0 mi² (10.3 km²).

PERIOD OF RECORD.--Water year 1979 to current year.

WATER-QUALITY DATA, WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993

| DATE | TIME | DIS-CHARGE, INST. CUBIC FEET PER SECOND | SPE-CIFIC CON-DUCT-ANCE (US/CM) | PH WATER WHOLE FIELD (STAND-ARD UNITS) | TEMPER-ATURE WATER (DEG C) | TUR-BID-ITY (NTU) | OXYGEN, DIS-SOLVED (MG/L) | OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION) | OXYGEN DEMAND, CHEM-ICAL (HIGH LEVEL) (MG/L) | COLI-FORM, FECAL, 0.45 UM-MF (COLS./100 ML) | STREP-TOCOCOCCI FECAL, (COLS. PER 100 ML) |
|-----------|------|---|---------------------------------|--|----------------------------|-------------------|---------------------------|---|--|---|---|
| OCT 1992 | | | | | | | | | | | |
| 14... | 0805 | 3.3 | 398 | 7.5 | 24.0 | 1.2 | 7.7 | 90 | <10 | K1000 | 2300 |
| DEC 08... | 0750 | 5.6 | 360 | 6.6 | 22.0 | 14 | 3.7 | 42 | 13 | 360 | 530 |
| FEB 1993 | | | | | | | | | | | |
| 04... | 0750 | 9.2 | 351 | 8.1 | 21.0 | 2.7 | 6.6 | 75 | 25 | 3300 | 8200 |
| APR 07... | 1025 | 4.2 | 369 | 7.7 | 24.5 | 1.5 | 7.5 | 88 | <10 | 430 | 1300 |
| MAY 26... | 0810 | 56 | 263 | 7.5 | 23.5 | 18 | 7.9 | 96 | 26 | K6600 | 5100 |
| SEP 20... | 1500 | 32 | 238 | 6.6 | 27.5 | 40 | 3.3 | 41 | 10 | 510 | 4100 |

| DATE | HARD-NESS TOTAL (MG/L AS CaCO3) | HARD-NESS NONCARB WH WAT TOT FLD MG/L AS CaCO3 | CALCIUM DIS-SOLVED (MG/L AS Ca) | MAGNE-SIUM, DIS-SOLVED (MG/L AS Mg) | SODIUM, DIS-SOLVED (MG/L AS Na) | SODIUM AD-SORP-TION RATIO | POTAS-SIUM, DIS-SOLVED (MG/L AS K) | ALKA-LINITY WAT WH TOT FET FILD MG/L AS CaCO3 | SULFIDE TOTAL (MG/L AS S) | SULFATE DIS-SOLVED (MG/L AS SO4) | CHLO-RIDE, DIS-SOLVED (MG/L AS Cl) |
|-----------|---------------------------------|--|---------------------------------|-------------------------------------|---------------------------------|---------------------------|------------------------------------|---|---------------------------|----------------------------------|------------------------------------|
| OCT 1992 | | | | | | | | | | | |
| 14... | 130 | 21 | 31 | 13 | 17 | 0.7 | 2.3 | 130 | <0.5 | 17 | 25 |
| DEC 08... | -- | -- | -- | -- | -- | -- | -- | 130 | -- | -- | -- |
| FEB 1993 | | | | | | | | | | | |
| 04... | -- | -- | -- | -- | -- | -- | -- | 140 | -- | -- | -- |
| APR 07... | 150 | -- | 34 | 15 | 19 | 0.7 | 2.8 | 130 | <0.5 | 16 | 25 |
| MAY 26... | -- | -- | -- | -- | -- | -- | -- | 130 | -- | -- | -- |
| SEP 20... | 100 | -- | 23 | 11 | 14 | 0.6 | 2.9 | 100 | -- | 15 | 14 |

| DATE | FLUO-RIDE, DIS-SOLVED (MG/L AS F) | SILICA, DIS-SOLVED (MG/L AS SiO2) | SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L) | SOLIDS, DIS-SOLVED (TONS PER DAY) | RESIDUE TOTAL AT 105 DEG. C, SUS-PENDED (MG/L) | NITRO-GEN, NITRATE TOTAL (MG/L AS N) | NITRO-GEN, NITRITE TOTAL (MG/L AS N) | NITRO-GEN, NO2+NO3 TOTAL (MG/L AS N) | NITRO-GEN, AMMONIA TOTAL (MG/L AS N) | NITRO-GEN, ORGANIC TOTAL (MG/L AS N) |
|-----------|-----------------------------------|-----------------------------------|---|-----------------------------------|--|--------------------------------------|--------------------------------------|--------------------------------------|--------------------------------------|--------------------------------------|
| OCT 1992 | | | | | | | | | | |
| 14... | 0.10 | 27 | 198 | 1.76 | 3 | 2.29 | 0.010 | 2.30 | 0.040 | 0.16 |
| DEC 08... | -- | -- | -- | -- | 12 | 1.37 | 0.030 | 1.40 | 0.080 | 0.42 |
| FEB 1993 | | | | | | | | | | |
| 04... | -- | -- | -- | -- | 7 | 1.29 | 0.010 | 1.30 | 0.010 | 0.69 |
| APR 07... | 0.10 | 25 | 215 | 2.44 | 33 | 1.59 | 0.010 | 1.60 | 0.020 | 0.38 |
| MAY 26... | -- | -- | -- | -- | 25 | 0.870 | 0.030 | 0.900 | 0.050 | 0.45 |
| SEP 20... | 0.10 | 23 | 163 | 14.1 | 31 | 1.19 | 0.010 | 1.20 | 0.010 | 0.39 |

K = non-ideal count

WATER-QUALITY DATA, WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993

[illegible]

RIO DE LA PLATA BASIN

50045000 LAGO LA PLATA AT DAMSITE, PR

LOCATION.--Lat 18°20'40", long 66°14'10", Hydrologic Unit 21010005, 2.9 mi (4.7 km) at northeast of Plaza de Naranjito, 2.7 mi (4.3 km) West of Road 167, km 15.3, Buena Vista, Bayamón, 5.2 mi (8.4 km) east of Plaza de Corozal.

DRAINAGE AREA.--181 mi² (469 km²).

ELEVATION RECORDS

PERIOD OF RECORD.--February 1989 to current year.

GAGE.--Water-stage recorder. Datum of gage is mean sea level.

REMARKS.--Lago La Plata first construction phase was completed in 1974 and the second construction phase to provide the spillway with bascule gates was completed in October 1989. The maximum storage is 37,000 ac-ft (45.6 km³) and its purpose is the supply of water for domestic and industrial use. La Plata Dam is a concrete gravity structure located across the Río de la Plata, the dam has an overall length of 774 ft (236 m) and a maximum height of about 131 ft (40 m). The dam spillway is provided with 6 bascule gates. The spillway crest has a total clear length of 690 ft (210 m), an elevation of 155 ft (47 m). The Dam is owned and operated by Puerto Rico Aqueduct and Sewer Authority. Gage-height and precipitation satellite telemetry at station.

EXTREMES OBSERVED FOR PERIOD OF RECORD.--Maximum elevation, 167.02 ft (50.91 m), Jan. 5, 1992; minimum elevation, 144.88 ft (44.16 m), Oct. 29, 1991.

EXTREMES FOR CURRENT YEAR.--Maximum elevation, 166.12 ft (50.63 m), Sept. 23; minimum elevation, 145.86 ft (44.46 m), Apr. 8.

Capacity Table
(based on data from Puerto Rico Aqueduct and Sewer Authority)

| Elevation, in feet | Contents, in acre-feet | Elevation, in feet | Contents, in acre-feet |
|--------------------|------------------------|--------------------|------------------------|
| 98.43 | 2,760 | 164.05 | 28,550 |
| 131.24 | 11,360 | 170.61 | 33,160 |
| 154.60 | 22,720 | 175.52 | 37,040 |

ELEVATION (FEET NGVD), WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993
DAILY OBSERVATION AT 24:00 VALUES

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|
| 1 | 154.07 | 154.48 | 154.99 | 155.06 | 154.92 | 152.52 | 147.33 | 159.57 | 158.06 | 158.19 | 161.86 | 163.47 |
| 2 | 153.98 | 154.31 | 155.00 | 155.10 | 154.85 | 152.39 | 147.09 | 159.52 | 158.10 | 157.97 | 161.82 | 163.24 |
| 3 | 153.84 | 154.32 | 154.99 | 155.09 | 154.84 | 152.21 | 146.91 | 158.65 | 158.11 | 157.97 | 161.81 | 163.18 |
| 4 | 153.66 | 154.82 | 155.03 | 155.05 | 154.85 | 152.04 | 146.70 | 158.85 | 158.06 | 157.87 | 161.82 | 163.12 |
| 5 | 153.55 | 154.89 | 155.01 | 155.10 | 154.77 | 151.88 | 146.47 | 159.36 | 157.98 | 157.73 | 161.83 | 163.26 |
| 6 | 155.48 | 154.82 | 154.94 | 155.13 | 154.71 | 151.71 | 146.22 | 161.16 | 157.92 | 157.55 | 161.12 | 163.95 |
| 7 | 155.17 | 154.78 | 154.88 | 155.31 | 154.66 | 151.53 | 146.00 | 159.31 | 157.88 | 157.54 | 161.04 | 164.21 |
| 8 | 155.00 | 154.80 | 154.82 | 155.05 | 154.56 | 151.34 | 146.27 | 159.27 | 157.87 | 157.45 | 161.00 | 164.41 |
| 9 | 154.84 | 154.74 | 154.80 | 154.94 | 154.47 | 151.16 | 147.01 | 159.26 | 157.99 | 157.32 | 161.01 | 164.45 |
| 10 | 154.83 | 154.68 | 154.75 | 154.91 | 154.37 | 150.98 | 147.51 | 157.48 | 158.07 | 157.21 | 160.95 | 164.34 |
| 11 | 154.70 | 154.66 | 154.69 | 154.91 | 154.27 | 150.81 | 150.36 | 158.12 | 158.01 | 159.34 | 160.86 | 164.41 |
| 12 | 154.53 | 154.64 | 154.58 | 154.93 | 154.18 | 150.62 | 152.21 | 158.46 | 157.92 | 159.58 | 160.76 | 164.41 |
| 13 | 154.35 | 154.71 | 154.51 | 154.91 | 154.11 | 150.43 | 154.33 | 158.63 | 157.90 | 159.46 | 160.70 | 164.38 |
| 14 | 154.24 | 154.87 | 154.80 | 154.89 | 154.02 | 150.29 | 156.81 | 159.14 | 157.86 | 159.40 | 160.33 | 164.05 |
| 15 | 154.10 | 155.10 | 155.10 | 154.88 | 153.91 | 150.12 | 157.21 | 158.26 | 157.77 | 159.25 | 159.29 | 164.06 |
| 16 | 153.93 | 154.93 | 154.97 | 154.87 | 153.83 | 150.07 | 156.88 | 158.61 | 157.93 | 159.05 | 162.50 | 164.09 |
| 17 | 153.83 | 154.83 | 154.95 | 154.86 | 153.74 | 150.01 | 157.34 | 158.78 | 158.01 | 158.88 | 162.89 | 164.13 |
| 18 | 154.05 | 154.85 | 154.96 | 154.83 | 153.64 | 149.87 | 157.70 | 158.84 | 158.04 | 158.65 | 163.27 | 164.48 |
| 19 | 154.20 | 154.87 | 154.98 | 154.81 | 153.49 | 149.72 | 157.68 | 158.81 | 159.60 | 158.46 | 163.45 | 164.85 |
| 20 | 154.42 | 155.19 | 154.94 | 154.79 | 153.48 | 149.50 | 158.16 | 158.78 | 158.89 | 158.22 | 163.49 | 164.77 |
| 21 | 154.42 | 154.94 | 154.90 | 154.77 | 153.44 | 149.33 | 158.63 | 158.72 | 158.86 | 158.02 | 163.56 | 164.77 |
| 22 | 154.31 | 155.09 | 154.93 | 154.93 | 153.36 | 149.14 | 158.84 | 158.86 | 159.19 | 158.21 | 163.67 | 164.81 |
| 23 | 154.81 | 155.05 | 154.95 | 155.02 | 153.25 | 148.99 | 158.80 | 160.40 | 159.21 | 160.06 | 163.88 | 166.02 |
| 24 | 155.28 | 154.93 | 155.12 | 154.95 | 153.20 | 148.88 | 158.68 | 159.66 | 159.01 | 163.24 | 164.03 | 165.12 |
| 25 | 155.02 | 154.82 | 155.17 | 154.97 | 153.09 | 148.73 | 158.54 | 159.54 | 158.80 | 162.73 | 163.97 | 164.54 |
| 26 | 154.87 | 154.77 | 155.75 | 154.92 | 152.95 | 148.53 | 158.40 | 160.14 | 158.59 | 162.81 | 164.02 | 164.22 |
| 27 | 154.77 | 156.64 | 155.14 | 154.89 | 152.80 | 148.33 | 158.30 | 159.23 | 158.40 | 162.32 | 163.76 | 164.64 |
| 28 | 154.69 | 155.41 | 155.19 | 154.88 | 152.66 | 148.13 | 157.99 | 159.15 | 158.54 | 162.04 | 163.76 | 164.78 |
| 29 | 154.57 | 155.05 | 155.23 | 155.16 | --- | 147.95 | 160.52 | 159.12 | 158.67 | 161.92 | 163.99 | 164.94 |
| 30 | 154.53 | 155.10 | 155.11 | 154.93 | --- | 147.73 | 159.46 | 157.80 | 158.48 | 161.92 | 164.06 | 164.96 |
| 31 | 154.51 | --- | 155.10 | 154.94 | --- | 147.51 | --- | 157.95 | --- | 161.90 | 163.77 | --- |
| MEAN | 154.47 | 154.90 | 154.98 | 154.96 | 153.94 | 150.08 | 153.81 | 159.01 | 158.32 | 159.43 | 162.40 | 164.34 |
| MAX | 155.48 | 156.64 | 155.75 | 155.31 | 154.92 | 152.52 | 160.52 | 161.16 | 159.60 | 163.24 | 164.06 | 166.02 |
| MIN | 153.55 | 154.31 | 154.51 | 154.77 | 152.66 | 147.51 | 146.00 | 157.48 | 157.77 | 157.21 | 159.29 | 163.12 |

RIO DE LA PLATA BASIN

50045010 RIO DE LA PLATA BELOW LA PLATA DAM, PR

LOCATION.--Lat 18°20'45", long 66°14'17", Hydrologic Unit 21010005, 2.8 mi (4.5 km) west of Road 167, km 15.3, Buena Vista, Bayamón, 5.0 mi (8.0 km) east of Plaza de Corozal, 3.0 mi (4.8 km) northeast of Plaza de Naranjito.

DRAINAGE AREA.--173 mi² (448 km²).

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--July 1989 to current year.

GAGE.--Water-stage recorder. Elevation of gage is 164 ft (30 m), from topographic map.

REMARKS.--Records poor. Regulation at all stages by Puerto Rico Aqueduct and Sewer Authority reservoir upstream from gage. Gage-height satellite telemetry at station.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993
DAILY MEAN VALUES

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|-------|---------|---------|--------|--------|-------|------|---------|-------|-------|-------|--------|--------|
| 1 | .02 | .43 | 350 | 149 | 201 | 3.5 | 1.0 | 758 | 61 | 198 | 137 | 96 |
| 2 | .04 | .46 | 207 | 150 | 146 | 3.5 | 1.0 | 1890 | 63 | 178 | 135 | 70 |
| 3 | .06 | .72 | 170 | 142 | 104 | 2.3 | .97 | 1400 | 65 | 161 | 80 | 4.1 |
| 4 | .09 | 9.4 | 153 | 125 | 80 | 1.9 | .94 | 279 | 68 | 157 | 53 | 3.0 |
| 5 | .10 | 43 | 146 | 105 | 36 | 2.3 | .91 | 98 | 74 | 147 | 67 | 2.6 |
| 6 | 139 | 30 | 106 | 125 | 18 | 2.6 | .91 | 989 | 74 | 136 | 279 | 96 |
| 7 | 661 | 15 | 52 | 232 | 6.3 | 2.7 | .91 | 1800 | 66 | 123 | 102 | 267 |
| 8 | 191 | 17 | 26 | 365 | 3.3 | 2.6 | 1.4 | 757 | 63 | 118 | 78 | 3.6 |
| 9 | 69 | 11 | 16 | 166 | 3.1 | 2.5 | 3.2 | 749 | 70 | 107 | 75 | 2.9 |
| 10 | 23 | 2.7 | 8.6 | 115 | 3.1 | 2.6 | 2.7 | 207 | 74 | 94 | 73 | 31 |
| 11 | 10 | .68 | 4.6 | 75 | 3.4 | 2.7 | 5.2 | 32 | 78 | 3680 | 71 | 3.0 |
| 12 | .63 | .50 | 3.2 | 60 | 3.7 | 2.3 | 5.2 | 42 | 75 | 996 | 69 | 2.2 |
| 13 | .21 | 3.3 | 3.1 | 54 | 4.3 | 1.8 | 3.0 | 66 | 68 | 481 | 32 | 2.1 |
| 14 | .14 | 45 | 3.9 | 50 | 3.4 | 1.6 | .91 | 729 | 65 | 462 | 155 | 94 |
| 15 | .12 | 106 | 128 | 40 | 3.4 | 1.4 | 392 | 721 | 79 | 313 | 460 | 2.6 |
| 16 | .11 | 190 | 135 | 29 | 3.6 | 1.7 | 733 | 85 | 113 | 281 | 709 | 2.2 |
| 17 | .11 | 107 | 80 | 21 | 3.7 | 2.0 | 100 | 88 | 77 | 259 | 400 | 1.8 |
| 18 | .13 | 75 | 63 | 15 | 3.7 | 1.7 | 170 | 124 | 82 | 237 | 5.7 | 125 |
| 19 | .14 | 91 | 49 | 10 | 3.6 | 1.5 | 300 | 141 | 1050 | 201 | 4.7 | 201 |
| 20 | .19 | 172 | 37 | 7.3 | 3.7 | 1.3 | 267 | 141 | 1990 | 203 | 32 | 274 |
| 21 | .27 | 361 | 25 | 5.8 | 3.7 | 1.2 | 223 | 142 | 404 | 192 | 4.2 | 51 |
| 22 | .08 | 221 | 28 | 14 | 3.6 | 1.1 | 198 | 140 | 278 | 115 | 3.0 | 2.2 |
| 23 | 2.0 | 291 | 36 | 112 | 3.5 | 1.5 | 215 | 464 | 330 | 299 | 2.6 | 454 |
| 24 | 56 | 202 | 90 | 105 | 3.6 | 1.6 | 224 | 798 | 232 | 430 | 2.2 | 1340 |
| 25 | 552 | 136 | 193 | 97 | 3.5 | 1.4 | 208 | 457 | 194 | 662 | 34 | 451 |
| 26 | 179 | 66 | 755 | 76 | 3.5 | 1.3 | 193 | 324 | 167 | 474 | 3.7 | 263 |
| 27 | 54 | 1320 | 667 | 51 | 3.6 | 1.2 | 175 | 845 | 158 | 452 | 54 | 67 |
| 28 | 11 | 2000 | 487 | 26 | 3.5 | 1.1 | 428 | 554 | 131 | 268 | 9.2 | 2.3 |
| 29 | .71 | 608 | 491 | 606 | --- | 1.1 | 1080 | 307 | 125 | 203 | 8.3 | 2.1 |
| 30 | .22 | 626 | 293 | 389 | --- | 1.0 | 1910 | 118 | 219 | 143 | 5.6 | 56 |
| 31 | .34 | --- | 186 | 189 | --- | 1.0 | --- | 56 | --- | 137 | 92 | --- |
| TOTAL | 1950.71 | 6751.19 | 4992.4 | 3706.1 | 665.8 | 58.0 | 6934.34 | 15301 | 6593 | 11907 | 3236.2 | 3972.7 |
| MEAN | 62.9 | 225 | 161 | 120 | 23.8 | 1.87 | 231 | 494 | 220 | 384 | 104 | 132 |
| MAX | 661 | 2000 | 755 | 606 | 201 | 3.5 | 1910 | 1890 | 1990 | 3680 | 709 | 1340 |
| MIN | .02 | .43 | 3.1 | 5.8 | 3.1 | 1.0 | .91 | 32 | 61 | 94 | 2.2 | 1.8 |
| AC-FT | 3870 | 13390 | 9900 | 7350 | 1320 | 115 | 13750 | 30350 | 13080 | 23620 | 6420 | 7880 |
| CFSM | .36 | 1.30 | .93 | .69 | .14 | .01 | 1.34 | 2.86 | 1.27 | 2.22 | .60 | .77 |
| IN. | .42 | 1.45 | 1.07 | .80 | .14 | .01 | 1.49 | 3.29 | 1.42 | 2.56 | .70 | .86 |

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1989 - 1993, BY WATER YEAR (WY)

| | | | | | | | | | | | | |
|------|------|------|------|------|------|------|------|------|------|------|------|------|
| MEAN | 344 | 91.9 | 61.5 | 442 | 64.2 | 34.0 | 68.9 | 245 | 77.5 | 112 | 27.6 | 245 |
| MAX | 1107 | 225 | 161 | 1581 | 222 | 83.2 | 231 | 494 | 220 | 384 | 104 | 1047 |
| (WY) | 1991 | 1993 | 1993 | 1992 | 1991 | 1990 | 1993 | 1993 | 1993 | 1993 | 1993 | 1989 |
| MIN | .048 | .16 | .14 | .19 | .27 | .10 | 7.04 | 2.00 | .16 | .092 | .020 | .001 |
| (WY) | 1992 | 1992 | 1990 | 1990 | 1990 | 1992 | 1992 | 1991 | 1991 | 1992 | 1989 | 1991 |

SUMMARY STATISTICS

FOR 1992 CALENDAR YEAR

FOR 1993 WATER YEAR

WATER YEARS 1989 - 1993

| | | | |
|--------------------------|----------|----------|--------|
| ANNUAL TOTAL | 80405.26 | 66068.44 | 136 |
| ANNUAL MEAN | 220 | 181 | 182 |
| HIGHEST ANNUAL MEAN | | | 37.8 |
| LOWEST ANNUAL MEAN | | | 1992 |
| HIGHEST DAILY MEAN | 27400 | 3680 | 27400 |
| LOWEST DAILY MEAN | .00 | .02 | .00 |
| ANNUAL SEVEN-DAY MINIMUM | .00 | .13 | .00 |
| INSTANTANEOUS PEAK FLOW | | 16700 | 127000 |
| INSTANTANEOUS PEAK STAGE | | 16.43 | 34.76 |
| ANNUAL RUNOFF (AC-FT) | 159500 | 131000 | 98700 |
| ANNUAL RUNOFF (CFSM) | 1.27 | 1.05 | .79 |
| ANNUAL RUNOFF (INCHES) | 17.31 | 14.22 | 10.71 |
| 10 PERCENT EXCEEDS | 222 | 463 | 246 |
| 50 PERCENT EXCEEDS | .89 | 69 | 2.3 |
| 90 PERCENT EXCEEDS | .00 | 1.2 | .00 |

RIO DE LA PLATA BASIN

50045010 RIO DE LA PLATA AT BELOW LA PLATA DAM, PR--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORDS.-- Water years 1990 to current year.

PERIOD OF DAILY RECORD.--

SUSPENDED-SEDIMENT DISCHARGE: October 1989 to September 1993.

INSTRUMENTATION.-- Automatic sediment sampler and DH-48.

EXTREMES FOR PERIOD OF DAILY RECORD.--

SEDIMENT CONCENTRATION: Maximum daily mean, 2,180 mg/L Jan. 06, 1992; Minimum daily mean, <.05 mg/L several days.

SEDIMENT LOADS: Maximum daily mean, 362,000tons (328,000tonnes) Jan. 06, 1992; Minimum daily mean, 0.00 ton (0.00 tonne) several days.

EXTREMES FOR WATER YEAR 1993.--

| Water Year | Suspended-sediment concentration (mg/L) | | Suspended-sediment discharge (tons per day) | |
|------------|---|------------------|---|---------------------|
| | maximum | minimum | maximum | minimum |
| 1993 | 382 (July 11) | 1 (Several days) | 10,700 (July 11) | <.01 (Several days) |

SEDIMENT DISCHARGE, SUSPENDED (TONS/DAY), WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993

| DAY | MEAN DISCHARGE (CFS) | MEAN CONCENTRATION (MG/L) | SEDIMENT DISCHARGE (TONS/DAY) | OCTOBER | | | NOVEMBER | | | DECEMBER | | |
|-------|----------------------|---------------------------|-------------------------------|----------------------|---------------------------|-------------------------------|----------------------|---------------------------|-------------------------------|----------------------|---------------------------|-------------------------------|
| | | | | MEAN DISCHARGE (CFS) | MEAN CONCENTRATION (MG/L) | SEDIMENT DISCHARGE (TONS/DAY) | MEAN DISCHARGE (CFS) | MEAN CONCENTRATION (MG/L) | SEDIMENT DISCHARGE (TONS/DAY) | MEAN DISCHARGE (CFS) | MEAN CONCENTRATION (MG/L) | SEDIMENT DISCHARGE (TONS/DAY) |
| | | | | | | | | | | | | |
| 1 | .02 | 2 | <.01 | .43 | 2 | <.01 | 350 | 37 | 46 | | | |
| 2 | .04 | 2 | <.01 | .46 | 2 | <.01 | 207 | 6 | 3.3 | | | |
| 3 | .06 | 2 | <.01 | .72 | 2 | <.01 | 170 | 5 | 2.5 | | | |
| 4 | .09 | 2 | <.01 | 9.4 | 3 | .10 | 153 | 4 | 1.9 | | | |
| 5 | .10 | 2 | <.01 | 43 | 5 | .56 | 146 | 4 | 1.6 | | | |
| 6 | 139 | 6 | 4.2 | 30 | 3 | .27 | 106 | 4 | 1.2 | | | |
| 7 | 661 | 6 | 11 | 15 | 2 | .09 | 52 | 4 | .63 | | | |
| 8 | 191 | 6 | 3.2 | 17 | 2 | .09 | 26 | 4 | .31 | | | |
| 9 | 69 | 5 | 1.0 | 11 | 2 | .06 | 16 | 4 | .18 | | | |
| 10 | 23 | 4 | .27 | 2.7 | 2 | .01 | 8.6 | 4 | .11 | | | |
| 11 | 10 | 2 | .09 | .68 | 2 | <.01 | 4.6 | 4 | .05 | | | |
| 12 | .63 | 1 | <.01 | .50 | 2 | <.01 | 3.2 | 4 | .04 | | | |
| 13 | .21 | 1 | <.01 | 3.3 | 2 | .02 | 3.1 | 4 | .04 | | | |
| 14 | .14 | 1 | <.01 | 45 | 5 | .71 | 3.9 | 4 | .04 | | | |
| 15 | .12 | 1 | <.01 | 106 | 7 | 2.8 | 128 | 9 | 3.5 | | | |
| 16 | .11 | 1 | <.01 | 190 | 11 | 5.6 | 135 | 9 | 3.4 | | | |
| 17 | .11 | 1 | <.01 | 107 | 8 | 2.5 | 80 | 6 | 1.7 | | | |
| 18 | .13 | 1 | <.01 | 75 | 7 | 1.5 | 63 | 4 | .71 | | | |
| 19 | .14 | 1 | <.01 | 91 | 8 | 1.9 | 49 | 4 | .51 | | | |
| 20 | .19 | 1 | <.01 | 172 | 9 | 5.3 | 37 | 4 | .39 | | | |
| 21 | .27 | 1 | <.01 | 361 | 13 | 13 | 25 | 4 | .26 | | | |
| 22 | .08 | 1 | <.01 | 221 | 9 | 5.5 | 28 | 4 | .28 | | | |
| 23 | 2.0 | 1 | .02 | 291 | 12 | 9.3 | 36 | 4 | .36 | | | |
| 24 | 56 | 5 | 1.5 | 202 | 11 | 5.9 | 90 | 7 | 1.9 | | | |
| 25 | 552 | 15 | 23 | 136 | 10 | 3.5 | 193 | 11 | 5.9 | | | |
| 26 | 179 | 10 | 5.2 | 66 | 7 | 1.3 | 755 | 16 | 32 | | | |
| 27 | 54 | 6 | .98 | 1320 | 158 | 1610 | 667 | 17 | 32 | | | |
| 28 | 11 | 4 | .11 | 2000 | 261 | 1770 | 487 | 22 | 27 | | | |
| 29 | .71 | 3 | <.01 | 608 | 95 | 177 | 491 | 16 | 22 | | | |
| 30 | .22 | 3 | <.01 | 626 | 95 | 162 | 293 | 13 | 12 | | | |
| 31 | .34 | 2 | <.01 | --- | --- | --- | 186 | 11 | 5.3 | | | |
| TOTAL | 1950.71 | --- | 50.57 | 6751.19 | --- | 3779.01 | 4992.4 | --- | 207.11 | | | |

RIO DE LA PLATA BASIN

50045010 RIO DE LA PLATA BELOW LA PLATA DAM, PR--Continued

SEDIMENT DISCHARGE, SUSPENDED (TONS/DAY), WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993

| DAY | MEAN DISCHARGE (CFS) | MEAN CONCEN- TRATION (MG/L) | SEDIMENT DISCHARGE (TONS/DAY) | MEAN DISCHARGE (CFS) | MEAN CONCEN- TRATION (MG/L) | SEDIMENT DISCHARGE (TONS/DAY) | MEAN DISCHARGE (CFS) | MEAN CONCEN- TRATION (MG/L) | SEDIMENT DISCHARGE (TONS/DAY) |
|---------|----------------------------|--------------------------------------|-------------------------------------|----------------------------|--------------------------------------|-------------------------------------|----------------------------|--------------------------------------|-------------------------------------|
| JANUARY | | | FEBRUARY | | | MARCH | | | |
| 1 | 149 | 10 | 4.0 | 201 | 4 | 2.1 | 3.5 | 11 | .11 |
| 2 | 150 | 8 | 3.1 | 146 | 4 | 1.6 | 3.5 | 9 | .08 |
| 3 | 142 | 8 | 3.3 | 104 | 4 | 1.1 | 2.3 | 7 | .05 |
| 4 | 125 | 8 | 2.8 | 80 | 3 | .77 | 1.9 | 5 | .03 |
| 5 | 105 | 8 | 2.8 | 36 | 3 | .32 | 2.3 | 4 | .02 |
| 6 | 125 | 9 | 3.0 | 18 | 3 | .16 | 2.6 | 3 | .02 |
| 7 | 232 | 11 | 7.9 | 6.3 | 3 | .06 | 2.7 | 2 | .02 |
| 8 | 365 | 12 | 12 | 3.3 | 3 | .03 | 2.6 | 2 | .02 |
| 9 | 166 | 9 | 4.9 | 3.1 | 3 | .02 | 2.5 | 1 | .01 |
| 10 | 115 | 8 | 2.6 | 3.1 | 3 | .02 | 2.6 | 1 | .00 |
| 11 | 75 | 7 | 1.6 | 3.4 | 3 | .02 | 2.7 | 1 | .00 |
| 12 | 60 | 7 | 1.1 | 3.7 | 3 | .03 | 2.3 | 1 | .01 |
| 13 | 54 | 6 | .97 | 4.3 | 3 | .05 | 1.8 | 2 | .01 |
| 14 | 50 | 6 | .82 | 3.4 | 4 | .04 | 1.6 | 2 | .00 |
| 15 | 40 | 6 | .65 | 3.4 | 4 | .04 | 1.4 | 2 | .00 |
| 16 | 29 | 6 | .46 | 3.6 | 4 | .04 | 1.7 | 2 | .01 |
| 17 | 21 | 6 | .33 | 3.7 | 4 | .04 | 2.0 | 2 | .02 |
| 18 | 15 | 6 | .24 | 3.7 | 4 | .04 | 1.7 | 2 | .01 |
| 19 | 10 | 6 | .17 | 3.6 | 5 | .04 | 1.5 | 2 | .00 |
| 20 | 7.3 | 6 | .13 | 3.7 | 5 | .05 | 1.3 | 2 | .00 |
| 21 | 5.8 | 6 | .10 | 3.7 | 5 | .05 | 1.2 | 2 | .00 |
| 22 | 14 | 6 | .22 | 3.6 | 5 | .05 | 1.1 | 2 | .00 |
| 23 | 112 | 8 | 2.5 | 3.5 | 7 | .07 | 1.5 | 2 | .00 |
| 24 | 105 | 7 | 2.2 | 3.6 | 9 | .09 | 1.6 | 2 | .00 |
| 25 | 97 | 6 | 1.5 | 3.5 | 11 | .11 | 1.4 | 2 | .00 |
| 26 | 76 | 6 | 1.3 | 3.5 | 13 | .13 | 1.3 | 2 | .00 |
| 27 | 51 | 6 | .84 | 3.6 | 14 | .14 | 1.2 | 2 | .00 |
| 28 | 26 | 6 | .44 | 3.5 | 13 | .13 | 1.1 | 2 | .00 |
| 29 | 606 | 21 | 38 | --- | --- | --- | 1.1 | 2 | .00 |
| 30 | 389 | 5 | 5.7 | --- | --- | --- | 1.0 | 2 | .00 |
| 31 | 189 | 4 | 2.1 | --- | --- | --- | 1.0 | 2 | .00 |
| TOTAL | 3706.1 | --- | 107.77 | 665.8 | --- | 7.34 | 58.0 | --- | 0.42 |

RIO DE LA PLATA BASIN

50045010 RIO DE LA PLATA BELOW LA PLATA DAM, PR--Continued

SEDIMENT DISCHARGE, SUSPENDED (TONS/DAY), WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993

| DAY | MEAN DISCHARGE (CFS) | MEAN CONCEN- TRATION (MG/L) | SEDIMENT DISCHARGE (TONS/DAY) | MEAN DISCHARGE (CFS) | MEAN CONCEN- TRATION (MG/L) | SEDIMENT DISCHARGE (TONS/DAY) | MEAN DISCHARGE (CFS) | MEAN CONCEN- TRATION (MG/L) | SEDIMENT DISCHARGE (TONS/DAY) |
|-------|----------------------------|--------------------------------------|-------------------------------------|----------------------------|--------------------------------------|-------------------------------------|----------------------------|--------------------------------------|-------------------------------------|
| APRIL | | | MAY | | | JUNE | | | |
| 1 | 1.0 | 2 | <.01 | 758 | 101 | 590 | 61 | 6 | 1.1 |
| 2 | 1.0 | 2 | <.01 | 1890 | 260 | 1580 | 63 | 7 | 1.1 |
| 3 | .97 | 2 | <.01 | 1400 | 196 | 908 | 65 | 7 | 1.2 |
| 4 | .94 | 2 | <.01 | 279 | 35 | 48 | 68 | 7 | 1.2 |
| 5 | .91 | 2 | <.01 | 98 | 23 | 6.5 | 74 | 7 | 1.4 |
| 6 | .91 | 2 | <.01 | 989 | 115 | 2150 | 74 | 7 | 1.4 |
| 7 | .91 | 2 | <.01 | 1800 | 233 | 2410 | 66 | 7 | 1.2 |
| 8 | 1.4 | 2 | .01 | 757 | 109 | 227 | 63 | 7 | 1.1 |
| 9 | 3.2 | 2 | .01 | 749 | 114 | 243 | 70 | 7 | 1.3 |
| 10 | 2.7 | 2 | .01 | 207 | 31 | 35 | 74 | 7 | 1.5 |
| 11 | 5.2 | 2 | .04 | 32 | 6 | .49 | 78 | 7 | 1.6 |
| 12 | 5.2 | 2 | .04 | 42 | 5 | .70 | 75 | 7 | 1.5 |
| 13 | 3.0 | 2 | .02 | 66 | 6 | 1.2 | 68 | 7 | 1.3 |
| 14 | .91 | 7 | 2.4 | 729 | 88 | 447 | 65 | 7 | 1.2 |
| 15 | 392 | 43 | 329 | 721 | 53 | 166 | 79 | 7 | 1.6 |
| 16 | 733 | 92 | 493 | 85 | 6 | 1.3 | 113 | 8 | 2.8 |
| 17 | 100 | 8 | 2.1 | 88 | 4 | 1.1 | 77 | 7 | 1.5 |
| 18 | 170 | 10 | 5.3 | 124 | 4 | 1.5 | 82 | 7 | 1.7 |
| 19 | 300 | 12 | 9.3 | 141 | 5 | 1.9 | 1050 | 131 | 762 |
| 20 | 267 | 12 | 9.6 | 141 | 5 | 1.9 | 1990 | 236 | 1490 |
| 21 | 223 | 12 | 7.8 | 142 | 5 | 1.9 | 404 | 13 | 16 |
| 22 | 198 | 12 | 6.4 | 140 | 5 | 1.9 | 278 | 12 | 9.1 |
| 23 | 215 | 12 | 7.0 | 464 | 11 | 23 | 330 | 13 | 12 |
| 24 | 224 | 12 | 7.1 | 798 | 18 | 39 | 232 | 11 | 7.0 |
| 25 | 208 | 12 | 6.4 | 457 | 14 | 17 | 194 | 11 | 5.7 |
| 26 | 193 | 11 | 5.7 | 324 | 12 | 11 | 167 | 10 | 4.6 |
| 27 | 175 | 11 | 5.2 | 845 | 18 | 44 | 158 | 10 | 4.2 |
| 28 | 428 | 50 | 387 | 554 | 15 | 24 | 131 | 9 | 3.2 |
| 29 | 1080 | 120 | 2320 | 307 | 13 | 11 | 125 | 9 | 3.3 |
| 30 | 1910 | 233 | 2590 | 118 | 9 | 3.3 | 219 | 11 | 6.6 |
| 31 | --- | --- | --- | 56 | 6 | .82 | --- | --- | --- |
| TOTAL | 6934.34 | --- | 6193.43 | 15301 | --- | 8997.51 | 6593 | --- | 2349.4 |

RIO DE LA PLATA BASIN

50045010 RIO DE LA PLATA BELOW LA PLATA DAM, PR--Continued

SEDIMENT DISCHARGE, SUSPENDED (TONS/DAY), WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993

| DAY | MEAN DISCHARGE (CFS) | MEAN CONCEN- TRATION (MG/L) | SEDIMENT DISCHARGE (TONS/DAY) | MEAN DISCHARGE (CFS) | MEAN CONCEN- TRATION (MG/L) | SEDIMENT DISCHARGE (TONS/DAY) | MEAN DISCHARGE (CFS) | MEAN CONCEN- TRATION (MG/L) | SEDIMENT DISCHARGE (TONS/DAY) |
|-------|----------------------------|--------------------------------------|-------------------------------------|----------------------------|--------------------------------------|-------------------------------------|----------------------------|--------------------------------------|-------------------------------------|
| JULY | | | AUGUST | | | SEPTEMBER | | | |
| 1 | 198 | 11 | 5.8 | 137 | 3 | 1.1 | 96 | 86 | 55 |
| 2 | 178 | 10 | 5.0 | 135 | 3 | 1.1 | 70 | 14 | 38 |
| 3 | 161 | 10 | 4.4 | 80 | 3 | .70 | 4.1 | 3 | .04 |
| 4 | 157 | 10 | 4.2 | 53 | 3 | .42 | 3.0 | 2 | .02 |
| 5 | 147 | 10 | 3.8 | 67 | 4 | .92 | 2.6 | 2 | .02 |
| 6 | 136 | 9 | 3.4 | 279 | 50 | 236 | 96 | 4 | 3.9 |
| 7 | 123 | 9 | 3.0 | 102 | 15 | 4.3 | 267 | 9 | 13 |
| 8 | 118 | 9 | 2.8 | 78 | 8 | 1.7 | 3.6 | 2 | .02 |
| 9 | 107 | 8 | 2.4 | 75 | 7 | 1.4 | 2.9 | 2 | .02 |
| 10 | 94 | 8 | 2.0 | 73 | 7 | 1.4 | 31 | 3 | 1.5 |
| 11 | 3680 | 382 | 10700 | 71 | 7 | 1.3 | 3.0 | 2 | .02 |
| 12 | 996 | 141 | 721 | 69 | 7 | 1.3 | 2.2 | 2 | .02 |
| 13 | 481 | 82 | 107 | 32 | 4 | .49 | 2.1 | 2 | .02 |
| 14 | 462 | 83 | 113 | 155 | 7 | 5.6 | 94 | 15 | 70 |
| 15 | 313 | 12 | 9.9 | 460 | 14 | 19 | 2.6 | 4 | .03 |
| 16 | 281 | 8 | 6.5 | 709 | 20 | 52 | 2.2 | 3 | .02 |
| 17 | 259 | 5 | 3.5 | 400 | 12 | 20 | 1.8 | 2 | .00 |
| 18 | 237 | 3 | 1.9 | 5.7 | 3 | .05 | 125 | 6 | 4.7 |
| 19 | 201 | 3 | 1.6 | 4.7 | 2 | .03 | 201 | 10 | 5.6 |
| 20 | 203 | 3 | 1.6 | 32 | 4 | 1.3 | 274 | 11 | 11 |
| 21 | 192 | 3 | 1.5 | 4.2 | 4 | .05 | 51 | 6 | 1.4 |
| 22 | 115 | 3 | .90 | 3.0 | 3 | .03 | 2.2 | 2 | .02 |
| 23 | 299 | 9 | 11 | 2.6 | 3 | .02 | 454 | 56 | 480 |
| 24 | 430 | 13 | 17 | 2.2 | 3 | .02 | 1340 | 175 | 1260 |
| 25 | 662 | 28 | 50 | 34 | 4 | 1.5 | 451 | 76 | 96 |
| 26 | 474 | 14 | 18 | 3.7 | 3 | .02 | 263 | 45 | 32 |
| 27 | 452 | 14 | 17 | 54 | 4 | 3.9 | 67 | 13 | 4.1 |
| 28 | 268 | 11 | 8.8 | 9.2 | 3 | .07 | 2.3 | 3 | .03 |
| 29 | 203 | 10 | 7.4 | 8.3 | 3 | .06 | 2.1 | 2 | .02 |
| 30 | 143 | 6 | 2.5 | 5.6 | 3 | .04 | 56 | 4 | 3.0 |
| 31 | 137 | 3 | 1.1 | 92 | 15 | 96 | --- | --- | --- |
| TOTAL | 11907 | --- | 11838.00 | 3236.2 | --- | 451.82 | 3972.7 | --- | 2079.50 |
| YEAR | 66068.44 | | 36061.88 | | | | | | |

RIO DE LA PLATA BASIN

50046000 RIO DE LA PLATA AT HIGHWAY 2 NEAR TOA ALTA, PR

LOCATION.--Lat 18°24'41", long 66°15'39", Hydrologic Unit 21010005, on left bank, at downstream side of bridge on Highway 2, 1.3 mi (2.1 km) downstream from Río Lajas, and 1.6 mi (2.6 km) northwest of Toa Alta, 11.3 mi (18.2 km) downstream from Puerto Rico Aqueduct and Sewer Authority reservoir.

DRAINAGE AREA.--208 mi² (539 km²), excludes 8.2 mi² (21.2 km²) upstream from Lago Carite, flow from which is diverted to Río Guamaní. Area at site used prior to September 25, 1984, 200 mi² (518 km²).

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--November 1959 (measurement only), January 1960 to current year. Prior to October 1984, published as Río de la Plata at Toa Alta, PR; October 1984 to September 1988 published as 50046900.

GAGE.--Water-stage recorder and crest-stage gage. Datum of gage is 9.15 ft (2.789 m), above mean sea level. Prior to October, 1984, at site about 1.0 mi (1.6 km) upstream at mean sea level datum.

REMARKS.--Records fair except those for estimated daily discharges, which are poor. Regulation at all stages by Puerto Rico Aqueduct and Sewer Authority reservoir upstream from gage. Gage-height and precipitation satellite telemetry at station.

EXTREMES OUTSIDE PERIOD OF RECORD.--Approximate discharges and elevations of major floods, as pointed out by local residents are as follows: Sept. 13, 1928, 120,000 ft³/s (3,400 m³/s), gage height, 37.4 ft (11.40 m); June 16, 1943, 82,000 ft³/s (2,322 m³/s), gage height, 34.4 ft (10.48 m), at site 1.0 mi upstream and different datum.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993

| DAY | DAILY MEAN VALUES | | | | | | | | | | | |
|-------|-------------------|-------|-------|------|------|------|-------|-------|-------|-------|------|------|
| | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
| 1 | 16 | 20 | 446 | 176 | 134 | 23 | 16 | 341 | e120 | 136 | 128 | 132 |
| 2 | 17 | 23 | 229 | 145 | 99 | 25 | 17 | 2040 | e90 | 130 | 115 | 120 |
| 3 | 23 | 42 | 157 | 144 | 67 | 25 | 15 | 1600 | e79 | 135 | 100 | 51 |
| 4 | 17 | 810 | 137 | 128 | 57 | 23 | 15 | 463 | 71 | 116 | 69 | 39 |
| 5 | 15 | 132 | 108 | 106 | 48 | 26 | 16 | 94 | 66 | 94 | 68 | 37 |
| 6 | 13 | 71 | 90 | 118 | 37 | 24 | 15 | 624 | 65 | 88 | 258 | 34 |
| 7 | 578 | 44 | 71 | 191 | 31 | 24 | 17 | 3680 | 66 | 139 | 103 | 281 |
| 8 | 191 | 35 | 48 | 392 | 29 | 22 | 20 | 982 | 83 | 92 | 82 | 46 |
| 9 | 91 | 38 | 39 | 198 | 27 | 23 | 52 | 720 | 121 | 75 | 79 | 35 |
| 10 | 55 | 31 | 34 | 118 | 26 | 21 | 73 | 389 | 86 | 64 | 81 | 127 |
| 11 | 49 | 23 | 30 | 90 | 26 | 27 | 341 | 117 | 69 | 3000 | 75 | 65 |
| 12 | 24 | 21 | 27 | 79 | 29 | 23 | 250 | 85 | 64 | 2090 | 73 | 40 |
| 13 | 17 | 114 | 27 | 77 | 27 | 19 | 81 | 79 | 63 | 532 | 68 | 58 |
| 14 | 15 | 108 | 41 | 74 | 26 | 19 | 137 | 418 | 61 | 393 | 58 | 109 |
| 15 | 12 | 50 | 251 | 67 | 26 | 18 | 106 | 854 | 57 | 255 | 358 | 60 |
| 16 | 14 | 150 | 118 | 63 | 25 | 35 | 1080 | 134 | 82 | 221 | 553 | 229 |
| 17 | 43 | 98 | 96 | 57 | 29 | 38 | 91 | 82 | 59 | 196 | 512 | 54 |
| 18 | 33 | 90 | 103 | 55 | 25 | 27 | 62 | 81 | 59 | 183 | 81 | 153 |
| 19 | 18 | 68 | 62 | 57 | 25 | 20 | 75 | 85 | 673 | 162 | 51 | 198 |
| 20 | 14 | 65 | 53 | 57 | 27 | 19 | 297 | 87 | 2060 | 141 | 65 | 270 |
| 21 | 13 | 366 | 43 | 67 | 33 | 19 | 217 | 94 | 489 | 149 | 56 | 111 |
| 22 | 18 | 171 | 72 | e86 | 26 | 19 | 106 | 130 | 203 | 181 | 46 | 50 |
| 23 | 45 | 286 | 66 | e120 | 24 | 23 | 61 | 342 | 278 | 292 | 40 | 47 |
| 24 | 44 | 208 | 162 | e70 | 27 | 31 | 59 | 817 | 179 | 666 | 34 | 1180 |
| 25 | 403 | 122 | 328 | e62 | 27 | 30 | 58 | 463 | 154 | 1210 | 72 | 359 |
| 26 | 215 | 64 | 2000 | e80 | 26 | 20 | 51 | 441 | 123 | 800 | 54 | 202 |
| 27 | 76 | 873 | 1470 | e75 | 25 | 18 | 49 | 1170 | 105 | 657 | 101 | 113 |
| 28 | 35 | 2810 | 632 | 50 | 24 | 18 | 454 | 613 | 93 | 409 | 67 | 55 |
| 29 | 21 | 897 | 723 | 394 | --- | 19 | 1020 | 312 | 76 | 225 | 48 | 38 |
| 30 | 20 | 629 | 517 | 454 | --- | 30 | 3830 | 184 | 139 | 141 | 48 | 60 |
| 31 | 18 | --- | 244 | 168 | --- | 18 | --- | 189 | --- | 129 | 135 | --- |
| TOTAL | 2163 | 8459 | 8424 | 4018 | 1032 | 726 | 8681 | 17710 | 5933 | 13101 | 3678 | 4353 |
| MEAN | 69.8 | 282 | 272 | 130 | 36.9 | 23.4 | 289 | 571 | 198 | 423 | 119 | 145 |
| MAX | 578 | 2810 | 2000 | 454 | 134 | 38 | 3830 | 3680 | 2060 | 3000 | 553 | 1180 |
| MIN | 12 | 20 | 27 | 50 | 24 | 18 | 15 | 79 | 57 | 64 | 34 | 34 |
| AC-FT | 4290 | 16780 | 16710 | 7970 | 2050 | 1440 | 17220 | 35130 | 11770 | 25990 | 7300 | 8630 |
| CFSM | .35 | 1.41 | 1.36 | .65 | .18 | .12 | 1.45 | 2.86 | .99 | 2.12 | .59 | .73 |
| IN. | .40 | 1.57 | 1.57 | .75 | .19 | .14 | 1.62 | 3.30 | 1.10 | 2.44 | .68 | .81 |

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1960 - 1993, BY WATER YEAR (WY)

| | 1960 | 1961 | 1962 | 1963 | 1964 | 1965 | 1966 | 1967 | 1968 | 1969 | 1970 | 1971 | 1972 | 1973 | 1974 | 1975 | 1976 | 1977 | 1978 | 1979 | 1980 | 1981 | 1982 | 1983 | 1984 | 1985 | 1986 | 1987 | 1988 | 1989 | 1990 | 1991 | 1992 | 1993 |
|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|
| MEAN | 502 | 455 | 344 | 193 | 134 | 106 | 200 | 375 | 173 | 155 | 262 | 323 | | | | | | | | | | | | | | | | | | | | | | |
| MAX | 4813 | 2015 | 1352 | 929 | 409 | 468 | 722 | 1939 | 847 | 690 | 1677 | 1691 | | | | | | | | | | | | | | | | | | | | | | |
| (WY) | 1971 | 1985 | 1971 | 1992 | 1989 | 1969 | 1987 | 1985 | 1970 | 1961 | 1979 | 1960 | | | | | | | | | | | | | | | | | | | | | | |
| MIN | 35.1 | 31.0 | 23.4 | 16.9 | 16.0 | 8.31 | 5.07 | 7.63 | 11.4 | 13.9 | 16.5 | 19.2 | | | | | | | | | | | | | | | | | | | | | | |
| (WY) | 1974 | 1981 | 1992 | 1984 | 1983 | 1986 | 1984 | 1984 | 1977 | 1976 | 1976 | 1991 | | | | | | | | | | | | | | | | | | | | | | |

SUMMARY STATISTICS

| | FOR 1992 CALENDAR YEAR | | FOR 1993 WATER YEAR | | WATER YEARS 1960 - 1993 | |
|--------------------------|------------------------|--------|---------------------|--------|-------------------------|-------------|
| ANNUAL TOTAL | 72222.2 | | 78278 | | | |
| ANNUAL MEAN | 197 | | 214 | | 266 | |
| HIGHEST ANNUAL MEAN | | | | | 824 | |
| LOWEST ANNUAL MEAN | | | | | 36.3 | |
| HIGHEST DAILY MEAN | 15900 | Jan 6 | 3830 | Apr 30 | 40000 | Oct 9 1970 |
| LOWEST DAILY MEAN | 7.9 | Mar 25 | 12 | Oct 15 | 2.7 | Apr 17 1984 |
| ANNUAL SEVEN-DAY MINIMUM | 9.9 | Mar 20 | 16 | Apr 1 | 2.9 | Apr 15 1984 |
| INSTANTANEOUS PEAK FLOW | | | 13900 | Jul 11 | 118000 | Jan 5 1992 |
| INSTANTANEOUS PEAK STAGE | | | 16.01 | Jul 11 | 26.39 | Jan 5 1992 |
| INSTANTANEOUS LOW FLOW | | | | | 2.2 | Apr 25 1984 |
| ANNUAL RUNOFF (AC-FT) | 143300 | | 155300 | | 193000 | |
| ANNUAL RUNOFF (CFSM) | .99 | | 1.07 | | 1.33 | |
| ANNUAL RUNOFF (INCHES) | 13.45 | | 14.57 | | 18.12 | |
| 10 PERCENT EXCEEDS | 275 | | 498 | | 509 | |
| 50 PERCENT EXCEEDS | 31 | | 75 | | 94 | |
| 90 PERCENT EXCEEDS | 12 | | 21 | | 19 | |

e Estimated

RIO DE LA PLATA BASIN

50046000 RIO DE LA PLATA AT HWY 2 NR TOA ALTA, PR
(National stream-quality accounting network station)

WATER-QUALITY RECORDS

LOCATION.--Lat 18°24'41", long 66°15'39", at Highway 2, 1.3 mi (2.1 km) downstream from Rio Lajas, and 1.6 mi (2.6 km) northwest of Toa Alta, 11.3 mi (18.2 km) downstream from Puerto Rico Aqueduct and Sewer Authority reservoir.

DRAINAGE AREA.--208 mi² (539 km²), exclude 8.2 mi² (21.2 km²) upstream from Lago Carite, flow from which is diverted to Rio Guamaní.

PERIOD OF RECORD.--Water years 1958 to current year

WATER-QUALITY DATA, WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993

| DATE | TIME | DIS-CHARGE, INST. CUBIC FEET PER SECOND | SPE- CIFIC CON- DUCT- ANCE (US/CM) | PH WATER WHOLE FIELD (STAND- ARD UNITS) | TEMPER- ATURE WATER (DEG C) | TUR- BID- ITY (NTU) | OXYGEN, DIS- SOLVED (MG/L) | OXYGEN, DIS- SOLVED (PER- CENT SATUR- ATION) | COLI- FORM, FECAL, 0.7 UM-MF (COLS./ 100 ML) | STREP- TOCOCCI FECAL, KF AGAR (COLS. PER 100 ML) | HARD- NESS TOTAL (MG/L AS CaCO3) |
|-----------|------|--|---|---|--------------------------------------|------------------------------|-------------------------------------|--|--|--|---|
| OCT 1992 | | | | | | | | | | | |
| 05... | 1115 | 16 | 472 | 7.4 | 30.0 | 0.30 | 6.9 | 90 | K900 | 500 | 190 |
| DEC 24... | 0805 | 58 | 405 | 7.0 | 25.0 | 13 | 4.0 | 84 | K1800 | K1800 | 160 |
| FEB 1993 | | | | | | | | | | | |
| 01... | 0835 | 139 | 342 | 7.6 | 25.0 | 0.50 | 5.0 | 69 | K760 | 700 | 140 |
| APR 05... | 0915 | 17 | 461 | 7.2 | 27.0 | 20 | 5.2 | 124 | 240 | 64 | 190 |
| JUN 09... | 0915 | 70 | 428 | 7.1 | 27.5 | 8.0 | 3.4 | 72 | K19000 | K2100 | 190 |
| SEP 07... | 0900 | 500 | 340 | 8.1 | 29.2 | 5.2 | 3.9 | 57 | 5200 | 1000 | 150 |

| DATE | HARD- NESS NONCARB WH WAT TOT FLD MG/L AS CaCO3 | CALCIUM DIS- SOLVED (MG/L AS Ca) | MAGNE- SIUM, DIS- SOLVED (MG/L AS Mg) | SODIUM, DIS- SOLVED (MG/L AS Na) | SODIUM AD- SORP- TION RATIO | POTAS- SIUM, DIS- SOLVED (MG/L AS K) | ALKA- LINITY WAT WH TOT FET MG/L AS CaCO3 | SULFATE DIS- SOLVED (MG/L AS SO4) | CHLO- RIDE, DIS- SOLVED (MG/L AS Cl) | FLUO- RIDE, DIS- SOLVED (MG/L AS F) | SILICA, DIS- SOLVED (MG/L AS SiO2) |
|-----------|---|--|--|--|---|---|--|---|---|--|---|
| OCT 1992 | | | | | | | | | | | |
| 05... | 130 | 59 | 11 | 23 | 0.7 | 3.3 | 200 | 19 | 33 | 0.20 | 18 |
| DEC 24... | 210 | 49 | 8.8 | 18 | 0.6 | 2.8 | 160 | 17 | 23 | 0.10 | 15 |
| FEB 1993 | | | | | | | | | | | |
| 01... | 160 | 36 | 11 | 17 | 0.6 | 2.6 | 130 | 15 | 20 | 0.10 | 19 |
| APR 05... | 130 | 56 | 13 | 23 | 0.7 | 3.2 | 180 | 22 | 36 | 0.10 | 18 |
| JUN 09... | 160 | 57 | 11 | 20 | 0.6 | 3.0 | 160 | 20 | 26 | 0.10 | 17 |
| SEP 07... | 120 | 40 | 12 | 19 | 0.7 | 6.8 | 140 | 22 | 19 | 0.10 | 19 |

| DATE | SOLIDS, RESIDUE AT 180 DEG. C DIS- SOLVED (MG/L) | SOLIDS, SUM OF CONSTITUENTS, DIS- SOLVED (MG/L) | SOLIDS, DIS- SOLVED (TONS PER DAY) | NITRO- GEN, NO2+NO3 DIS- SOLVED (MG/L AS N) | NITRO- GEN, AMMONIA DIS- SOLVED (MG/L AS N) | NITRO- GEN, AMMONIA DIS- SOLVED (MG/L AS NH4) | NITRO- GEN,AM- MONIA + ORGANIC TOTAL (MG/L AS N) | PHOS- PHORUS TOTAL (MG/L AS P) | PHOS- PHORUS DIS- SOLVED (MG/L AS P) | PHOS- PHORUS ORTHO, DIS- SOLVED (MG/L AS P) | PHOS- PHATE, ORTHO, DIS- SOLVED (MG/L AS PO4) |
|-----------|--|--|---|---|---|---|--|--|---|---|---|
| OCT 1992 | | | | | | | | | | | |
| 05... | 289 | 291 | 12.2 | 0.770 | 0.030 | 0.04 | 0.40 | 0.190 | 0.180 | 0.160 | 0.49 |
| DEC 24... | 250 | 228 | 35.7 | -- | -- | -- | -- | -- | -- | -- | -- |
| FEB 1993 | | | | | | | | | | | |
| 01... | 193 | 203 | 76.2 | 0.360 | 0.070 | 0.09 | 0.40 | 0.140 | 0.100 | 0.100 | 0.31 |
| APR 05... | 292 | 284 | 13.0 | 0.390 | 0.040 | 0.05 | 0.30 | 0.110 | 0.090 | 0.110 | 0.34 |
| JUN 09... | 259 | 249 | 47.1 | -- | -- | -- | -- | -- | -- | -- | -- |
| SEP 07... | 228 | 218 | 294 | 0.160 | 0.080 | 0.10 | 0.50 | 0.070 | 0.070 | 0.050 | 0.15 |

K = non-ideal count

RIO DE LA PLATA BASIN

50046000 RIO DE LA PLATA AT HWY 2 NR TOA ALTA, PR--Continued
(National stream-quality accounting network station)

| DATE | ALUM- INUM, DIS- SOLVED (UG/L AS AL) | ARSENIC DIS- SOLVED (UG/L AS AS) | BARIUM, DIS- SOLVED (UG/L AS BA) | BERYL- LIUM, DIS- SOLVED (UG/L AS BE) | CADMIUM DIS- SOLVED (UG/L AS CD) | CHRO- MIUM, DIS- SOLVED (UG/L AS CR) | COBALT, DIS- SOLVED (UG/L AS CO) | COPPER, DIS- SOLVED (UG/L AS CU) | IRON, DIS- SOLVED (UG/L AS FE) | LEAD, DIS- SOLVED (UG/L AS PB) | LITHIUM DIS- SOLVED (UG/L AS LI) |
|----------|---|--|--|--|--|---|--|--|--|--|--|
| OCT 1992 | | | | | | | | | | | |
| 05... | 10 | <1 | 50 | <0.5 | <1 | <1 | <3 | 4 | 9 | 2 | <4 |
| DEC | | | | | | | | | | | |
| 24... | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| FEB 1993 | | | | | | | | | | | |
| 01... | 80 | 1 | 35 | <0.5 | 2 | <1 | <3 | 2 | 14 | <1 | <4 |
| APR | | | | | | | | | | | |
| 05... | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| JUN | | | | | | | | | | | |
| 09... | 30 | 2 | 57 | <0.5 | 1 | <1 | <3 | 2 | 33 | 1 | <4 |
| SEP | | | | | | | | | | | |
| 07... | 90 | 1 | 45 | <0.5 | <1 | <1 | <3 | 3 | 11 | 5 | <4 |

| DATE | MANGA- NESE, DIS- SOLVED (UG/L AS MN) | MERCURY DIS- SOLVED (UG/L AS HG) | MOLYB- DENUM, DIS- SOLVED (UG/L AS MO) | NICKEL, DIS- SOLVED (UG/L AS NI) | SELE- NIUM, DIS- SOLVED (UG/L AS SE) | SILVER, DIS- SOLVED (UG/L AS AG) | STRON- TIUM, DIS- SOLVED (UG/L AS SR) | VANA- DIUM, DIS- SOLVED (UG/L AS V) | ZINC, DIS- SOLVED (UG/L AS ZN) |
|----------|--|--|---|--|---|--|--|--|--|
| OCT 1992 | | | | | | | | | |
| 05... | 62 | <0.1 | <10 | 3 | <1 | <1.0 | 270 | 12 | 15 |
| DEC | | | | | | | | | |
| 24... | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| FEB 1993 | | | | | | | | | |
| 01... | 34 | 0.2 | <10 | 1 | <1 | <1.0 | 150 | <6 | 8 |
| APR | | | | | | | | | |
| 05... | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| JUN | | | | | | | | | |
| 09... | 78 | <0.1 | <10 | 2 | <1 | <1.0 | 220 | 7 | 5 |
| SEP | | | | | | | | | |
| 07... | 25 | <0.1 | <10 | 2 | <1 | <1.0 | 150 | 9 | 7 |

RIO DE LA PLATA BASIN

50046000 RIO DE LA PLATA AT HWY 2 NR TOA ALTA, PR--Continued
(National stream-quality accounting network station)

WATER-QUALITY DATA, WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993

PARTICLE-SIZE DISTRIBUTION OF SUSPENDED SEDIMENT

| DATE | TIME | STREAM- FLOW, INSTAN- TANEOUS (CFS) | SEDI- MENT, SUS- PENDED (MG/L) | SEDI- MENT, DIS- CHARGE, SUS- PENDED (T/DAY) | SED. SUSP. SIEVE DIAM. PERCENT FINER THAN .062 MM |
|----------|------|---|--|--|--|
| OCT 1992 | | | | | |
| 05... | 1115 | 16 | 16 | 0.67 | 95 |
| DEC 1993 | | | | | |
| 24... | 0805 | 58 | 18 | 2.77 | 96 |
| FEB | | | | | |
| 01... | 0835 | 139 | 20 | 7.43 | 75 |
| APR | | | | | |
| 05... | 0915 | 17 | 44 | 2.0 | 65 |
| JUN | | | | | |
| 09... | 0915 | 70 | 31 | 5.76 | 95 |
| SEP | | | | | |
| 07... | 0900 | 168 | 48 | 22 | 75 |

PESTICIDE ANALYSES

| DATE | TIME | PCB, TOTAL (UG/L) | ALDRIN, TOTAL (UG/L) | CHLOR- DANE, TOTAL (UG/L) | DDD, TOTAL (UG/L) | DDE, TOTAL (UG/L) | DDT, TOTAL (UG/L) | DI- AZINON, TOTAL (UG/L) | DI- ELDRIN TOTAL (UG/L) | ENDO- SULFAN, TOTAL (UG/L) |
|----------|------|-------------------------|----------------------------|------------------------------------|-------------------------|-------------------------|-------------------------|-----------------------------------|----------------------------------|-------------------------------------|
| JUN 1993 | | | | | | | | | | |
| 29... | 0930 | <0.1 | <0.010 | <0.1 | <0.010 | <0.010 | <0.010 | <0.01 | <0.010 | <0.010 |

| DATE | ENDRIN WATER UNFLTRD REC (UG/L) | ETHION, TOTAL (UG/L) | HEPTA- CHLOR, TOTAL (UG/L) | HEPTA- CHLOR EPOXIDE TOTAL (UG/L) | LINDANE TOTAL (UG/L) | MALA- THION, TOTAL (UG/L) | METH- OXY- CHLOR, TOTAL (UG/L) | METHYL PARA- THION, TOTAL (UG/L) | MIREX, TOTAL (UG/L) |
|----------|---|----------------------------|-------------------------------------|---|----------------------------|------------------------------------|--|--|---------------------------|
| JUN 1993 | | | | | | | | | |
| 29... | <0.010 | <0.01 | <0.010 | <0.010 | <0.010 | <0.01 | <0.01 | <0.01 | <0.01 |

| DATE | PARA- THION, TOTAL (UG/L) | NAPH- THA- LENES, POLY- CHLOR. TOTAL (UG/L) | PER- THANE TOTAL (UG/L) | TOX- APHENE, TOTAL (UG/L) | TOTAL TRI- THION (UG/L) | 2,4-D, TOTAL (UG/L) | 2,4,5-T TOTAL (UG/L) | 2, 4-DP TOTAL (UG/L) | SILVEX, TOTAL (UG/L) |
|----------|------------------------------------|---|----------------------------------|------------------------------------|----------------------------------|---------------------------|----------------------------|----------------------------|----------------------------|
| JUN 1993 | | | | | | | | | |
| 29... | <0.01 | <0.10 | <0.1 | <1 | <0.01 | <0.01 | <0.01 | <0.01 | <0.01 |

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Figure 19.--Río Hondo to Río Puerto Nuevo basins.

RIO HONDO BASIN

50047530 RIO HONDO AT FLOOD CHANNEL NEAR CATANO, PR

WATER-QUALITY RECORDS

LOCATION.--Lat 18°26'13", long 66°09'36", at Rio Hondo Channel, 800 ft (245 m) below junction with Rio Hondo, 0.9 mi (1.5 km) downstream from bridge on de Diego Expressway and 1.1 mi (1.8 km) above mouth.

DRAINAGE AREA.--Indeterminate.

PERIOD OF RECORD.--Water years 1979 to current year.

WATER-QUALITY DATA, WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993

| DATE | TIME | DIS-CHARGE, INST. CUBIC FEET PER SECOND | SPE-CIFIC CON-DUCT-ANCE (US/CM) | PH WATER WHOLE FIELD (STAND-ARD UNITS) | TEMPER-ATURE WATER (DEG C) | TUR-BID-ITY (NTU) | OXYGEN, DIS-SOLVED (MG/L) | OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION) | OXYGEN DEMAND, CHEM-ICAL (HIGH LEVEL) (MG/L) | COLI-FORM, FECAL, 0.45 UM-MF (COLS. / 100 ML) | STREP-TOCOCCI FECAL, (COLS. PER 100 ML) |
|----------------|------|---|---------------------------------|--|----------------------------|-------------------|---------------------------|---|--|---|---|
| NOV 1992 05... | 1050 | -- | 940 | 7.3 | 28.0 | 24 | 4.3 | 54 | 58 | K140000 | 22000 |
| JAN 1993 05... | 1115 | -- | 16000 | 8.1 | 26.0 | 9.0 | 11.6 | 140 | 72 | 2100 | K450 |
| MAR 08... | 0830 | -- | 25000 | 8.2 | 24.5 | 2.0 | 7.0 | 82 | 370 | 20000 | 20000 |
| MAY 04... | 0815 | -- | 3500 | 6.9 | 28.5 | 31 | 3.1 | 39 | 46 | 41000 | 32000 |
| JUN 21... | 0920 | -- | 7600 | 7.1 | 27.5 | 0.80 | 4.0 | 50 | 120 | 15000 | 19000 |
| AUG 24... | 0900 | -- | 39000 | 7.8 | 31.5 | 20 | 4.7 | 62 | 670 | 25000 | 6900 |

| DATE | HARD-NESS TOTAL (MG/L AS CaCO3) | HARD-NESS NONCARB WH WAT TOT FLD (MG/L AS CaCO3) | CALCIUM DIS-SOLVED (MG/L AS Ca) | MAGNE-SIUM, DIS-SOLVED (MG/L AS Mg) | SODIUM, DIS-SOLVED (MG/L AS Na) | SODIUM AD-SORP-TION RATIO | POTAS-SIUM, DIS-SOLVED (MG/L AS K) | ALKA-LINITY WAT WH TOT FET FIELD (MG/L AS CaCO3) | SULFIDE TOTAL (MG/L AS S) | SULFATE DIS-SOLVED (MG/L AS SO4) | CHLO-RIDE, DIS-SOLVED (MG/L AS Cl) |
|----------------|---------------------------------|--|---------------------------------|-------------------------------------|---------------------------------|---------------------------|------------------------------------|--|---------------------------|----------------------------------|------------------------------------|
| NOV 1992 05... | 700 | 26 | 66 | 129 | 1099 | 17 | 41 | 110 | <0.5 | 290 | 2100 |
| JAN 1993 05... | -- | -- | -- | -- | -- | -- | -- | 140 | -- | -- | -- |
| MAR 08... | -- | -- | -- | -- | -- | -- | -- | 160 | -- | -- | -- |
| MAY 04... | 430 | 29 | 51 | 74 | 580 | 12 | 23 | 89 | <0.5 | 170 | 990 |
| JUN 21... | -- | -- | -- | -- | -- | -- | -- | 130 | -- | -- | -- |
| AUG 24... | 3800 | 18 | 270 | 770 | 6500 | 46 | 180 | 160 | -- | 1700 | 11000 |

| DATE | FLUO-RIDE, DIS-SOLVED (MG/L AS F) | SILICA, DIS-SOLVED (MG/L AS SiO2) | SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L) | SOLIDS, DIS-SOLVED (TONS PER DAY) | RESIDUE TOTAL AT 105 DEG. C, SUS-PENDED (MG/L) | NITRO-GEN, NITRATE TOTAL (MG/L AS N) | NITRO-GEN, NITRITE TOTAL (MG/L AS N) | NITRO-GEN, NO2+NO3 TOTAL (MG/L AS N) | NITRO-GEN, AMMONIA TOTAL (MG/L AS N) | NITRO-GEN, ORGANIC TOTAL (MG/L AS N) |
|----------------|-----------------------------------|-----------------------------------|---|-----------------------------------|--|--------------------------------------|--------------------------------------|--------------------------------------|--------------------------------------|--------------------------------------|
| NOV 1992 05... | 0.20 | 10 | 3800 | -- | 24 | 0.090 | 0.010 | 0.100 | 4.40 | 2.6 |
| JAN 1993 05... | -- | -- | -- | -- | 18 | 0.080 | 0.020 | 0.100 | 8.90 | 6.1 |
| MAR 08... | -- | -- | -- | -- | 4 | 0.060 | 0.040 | 0.100 | 6.60 | 5.4 |
| MAY 04... | 0.20 | 8.4 | 1950 | -- | 41 | 0.060 | 0.040 | 0.100 | 2.80 | 3.6 |
| JUN 21... | -- | -- | -- | -- | 16 | 0.150 | 0.050 | 0.200 | 4.20 | 4.9 |
| AUG 24... | 2.1 | 3.7 | 20500 | -- | 87 | 0.350 | 0.050 | 0.400 | 0.70 | 3.4 |

K = non-ideal count

50047530 RIO HONDO AT FLOOD CHANNEL NEAR CATANO, PR--Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993

| DATE | NITRO- GEN, AM- MONIA + ORGANIC TOTAL (MG/L AS N) | NITRO- GEN, TOTAL (MG/L AS N) | NITRO- GEN, TOTAL (MG/L AS NO3) | PHOS- PHORUS TOTAL (MG/L AS P) | ARSENIC TOTAL (UG/L AS AS) | BARIUM, TOTAL RECOV- ERABLE (UG/L AS BA) | BORON, TOTAL RECOV- ERABLE (UG/L AS B) | CADMIUM TOTAL RECOV- ERABLE (UG/L AS CD) | CHRO- MIUM, TOTAL RECOV- ERABLE (UG/L AS CR) | COPPER, TOTAL RECOV- ERABLE (UG/L AS CU) |
|-------------------|---|---|---|--|-------------------------------------|---|---|---|--|---|
| NOV 1992 05... | 7.0 | 3.0 | 13 | 0.280 | 9 | <100 | 500 | <1 | <1 | <10 |
| JAN 1993 05... | 15 | 2.2 | 9.7 | 0.260 | -- | -- | -- | -- | -- | -- |
| MAR 08... | 12 | 2.4 | 11 | 0.040 | -- | -- | -- | -- | -- | -- |
| MAY 04... | 6.4 | 4.2 | 8.4 | 0.430 | 3 | <100 | 260 | <1 | <1 | <10 |
| JUN 21... | 9.1 | 9.3 | 4.1 | 0.210 | -- | -- | -- | -- | -- | -- |
| AUG 24... | 4.1 | 1.8 | 8.0 | 0.290 | -- | -- | -- | -- | -- | -- |

[illegible]

RIO DE BAYAMON BASIN

50047535 RIO DE BAYAMON AT ARENAS, PR

LOCATION.--Lat 18°10'11", long 66°07'18", Hydrologic Unit 21010005, at left bank, 2.61 mi (4.20 km) southeast of plaza de Cidra, 0.56 mi (0.90 km) southwest from Escuela Segunda Unidad de Bayamón, and 2.70 mi (4.34 km) northeast from Central Cayey.

DRAINAGE AREA.--0.45 mi² (1.16 km²).

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--July 1992 to current year.

GAGE.--Water-stage recorder. Elevation of gage is 1,378 ft (420 m), from topographic map.

REMARKS.--Records poor.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1991 TO SEPTEMBER 1992
DAILY MEAN VALUES

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|-------|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-------|-------|
| 1 | | | | | | | | | | | .06 | .07 |
| 2 | | | | | | | | | | | .10 | .06 |
| 3 | | | | | | | | | | | .09 | .11 |
| 4 | | | | | | | | | | | .07 | .08 |
| 5 | | | | | | | | | | | 6.2 | .08 |
| 6 | | | | | | | | | | | 2.9 | .13 |
| 7 | | | | | | | | | | | .75 | .09 |
| 8 | | | | | | | | | | | .36 | .10 |
| 9 | | | | | | | | | | | .21 | .95 |
| 10 | | | | | | | | | | | .14 | .12 |
| 11 | | | | | | | | | | | .28 | .08 |
| 12 | | | | | | | | | | | .18 | .06 |
| 13 | | | | | | | | | | | .17 | .05 |
| 14 | | | | | | | | | | | .24 | .05 |
| 15 | | | | | | | | | | | .23 | .05 |
| 16 | | | | | | | | | | | .13 | .77 |
| 17 | | | | | | | | | | | .11 | 2.3 |
| 18 | | | | | | | | | | | .10 | 1.0 |
| 19 | | | | | | | | | | | .11 | 12 |
| 20 | | | | | | | | | | | .10 | 17 |
| 21 | | | | | | | | | | | .08 | 5.0 |
| 22 | | | | | | | | | | | .06 | 2.4 |
| 23 | | | | | | | | | | | .06 | 1.5 |
| 24 | | | | | | | | | | | .06 | .93 |
| 25 | | | | | | | | | | .18 | .06 | .60 |
| 26 | | | | | | | | | | .09 | .21 | .39 |
| 27 | | | | | | | | | | .07 | .13 | .18 |
| 28 | | | | | | | | | | .06 | .82 | .12 |
| 29 | | | | | | | | | | .06 | .14 | .11 |
| 30 | | | | | | | | | | .06 | .07 | .10 |
| 31 | | | | | | | | | | .06 | .13 | --- |
| TOTAL | | | | | | | | | | --- | 14.35 | 46.48 |
| MEAN | | | | | | | | | | --- | .46 | 1.55 |
| MAX | | | | | | | | | | --- | 6.2 | 17 |
| MIN | | | | | | | | | | --- | .06 | .05 |
| AC-FT | | | | | | | | | | --- | .28 | .92 |
| CFSM | | | | | | | | | | --- | 1.03 | 3.44 |
| IN. | | | | | | | | | | --- | 1.19 | 3.84 |

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1992 - 1992, BY WATER YEAR (WY)

| | | | |
|------|-----|------|------|
| MEAN | --- | .46 | 1.55 |
| MAX | --- | .46 | 1.55 |
| (WY) | --- | 1992 | 1992 |
| MIN | --- | .46 | 1.55 |
| (WY) | --- | 1992 | 1992 |

RIO DE BAYAMON BASIN

50047535 RIO DE BAYAMON AT ARENAS, PR-Continued

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993
DAILY MEAN VALUES

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|-------|------|-------|-------|-------|------|------|-------|-------|-------|-------|-------|-------|
| 1 | .10 | .19 | 1.9 | 1.1 | .16 | .12 | .05 | 10 | .24 | .15 | .22 | .15 |
| 2 | .09 | .18 | 1.1 | .84 | .12 | .12 | .05 | 17 | .24 | .18 | .23 | .16 |
| 3 | .08 | .27 | 1.8 | .72 | .14 | .11 | .05 | 3.2 | .22 | .20 | .21 | .17 |
| 4 | .07 | .81 | 1.0 | .59 | .13 | .11 | .05 | 1.1 | e.21 | .16 | .19 | .15 |
| 5 | .09 | .35 | .56 | .50 | .16 | .12 | .04 | .73 | e.20 | .13 | .22 | .16 |
| 6 | 3.2 | .69 | .30 | 1.3 | .19 | .12 | .04 | .71 | e.18 | .13 | .20 | .27 |
| 7 | 1.5 | .55 | .21 | 1.5 | .18 | .13 | .04 | .52 | e.17 | .16 | .19 | .14 |
| 8 | .55 | .32 | .15 | 1.1 | .20 | .12 | .26 | .40 | e.16 | .17 | .19 | .19 |
| 9 | .16 | .37 | .13 | 1.3 | .12 | .12 | .27 | .66 | e.16 | .13 | .19 | .14 |
| 10 | .15 | 2.4 | .11 | .83 | .11 | .11 | .13 | .74 | .14 | .12 | .23 | e.25 |
| 11 | .12 | .19 | .10 | .39 | .16 | .09 | .10 | .45 | .13 | 28 | .24 | e.13 |
| 12 | .09 | .11 | .10 | .31 | .31 | .08 | .17 | .35 | .12 | 3.5 | .20 | e.12 |
| 13 | .10 | .11 | .12 | .26 | .44 | .07 | .51 | .29 | .14 | 1.1 | .19 | e.11 |
| 14 | .10 | .12 | e.30 | .75 | .18 | .08 | e3.2 | 17 | .14 | .56 | .19 | e.12 |
| 15 | .11 | .11 | e.16 | .31 | .15 | .09 | e2.3 | 2.2 | .21 | .27 | .29 | e.12 |
| 16 | .11 | .12 | e.14 | .26 | .19 | .08 | e1.5 | 1.1 | .15 | .33 | 14 | e.13 |
| 17 | .15 | 1.0 | e.16 | .22 | .12 | .17 | .50 | .71 | .10 | .15 | 1.9 | e.18 |
| 18 | .22 | 1.1 | e.17 | .18 | .12 | .14 | .20 | .44 | .13 | .10 | .72 | e.30 |
| 19 | .16 | .80 | e.16 | .18 | .12 | .16 | .13 | .32 | 8.2 | .09 | .39 | e.13 |
| 20 | .13 | .23 | e.15 | .13 | .11 | .11 | .13 | .30 | 5.0 | .09 | .28 | e.25 |
| 21 | .12 | .10 | e.14 | .11 | .17 | .09 | .17 | .29 | .91 | .09 | .24 | e.13 |
| 22 | .11 | .61 | e.20 | .95 | .12 | .08 | .11 | .27 | 8.9 | 4.0 | .45 | e.11 |
| 23 | .10 | .41 | e.15 | .65 | .10 | .08 | .07 | .30 | 1.9 | 6.9 | .67 | e13 |
| 24 | .71 | .12 | e.21 | .32 | .10 | .09 | .06 | .28 | .67 | 13 | .25 | 1.5 |
| 25 | .34 | .11 | e.20 | .69 | .10 | .08 | .07 | .31 | .34 | 2.7 | .19 | .39 |
| 26 | .09 | .11 | e5.6 | .35 | .11 | .07 | .10 | 1.0 | .22 | 1.3 | .16 | .24 |
| 27 | .10 | 9.9 | e1.0 | .25 | .12 | .07 | .07 | .53 | .16 | .86 | .15 | .18 |
| 28 | .11 | 7.4 | e.81 | .38 | .12 | .06 | .20 | .42 | .13 | .46 | .15 | .18 |
| 29 | .11 | 4.2 | .53 | 2.0 | --- | .05 | 2.3 | .32 | .14 | .33 | .15 | .62 |
| 30 | .13 | 6.1 | .37 | .53 | --- | .05 | .71 | .29 | .21 | .26 | .15 | .30 |
| 31 | .19 | --- | 1.5 | .24 | --- | .05 | --- | .25 | --- | .24 | .16 | --- |
| TOTAL | 9.39 | 39.08 | 19.53 | 19.24 | 4.35 | 3.02 | 13.58 | 62.48 | 29.82 | 65.86 | 23.19 | 20.02 |
| MEAN | .30 | 1.30 | .63 | .62 | .16 | .097 | .45 | 2.02 | .99 | 2.12 | .75 | .67 |
| MAX | 3.2 | 9.9 | 5.6 | 2.0 | .44 | .17 | 3.2 | 17 | 8.9 | 28 | 14 | 13 |
| MIN | .07 | .10 | .10 | .11 | .10 | .05 | .04 | .25 | .10 | .09 | .15 | .11 |
| AC-FT | 19 | 78 | 39 | 38 | 8.6 | 6.0 | 27 | 124 | 59 | 131 | 46 | 40 |
| CFSM | .67 | 2.89 | 1.40 | 1.38 | .35 | .22 | 1.01 | 4.48 | 2.21 | 4.72 | 1.66 | 1.48 |
| IN. | .78 | 3.23 | 1.61 | 1.59 | .36 | .25 | 1.12 | 5.17 | 2.47 | 5.44 | 1.92 | 1.65 |

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1992 - 1993, BY WATER YEAR (WY)

| | | | | | | | | | | | | |
|------|------|------|------|------|------|------|------|------|------|------|------|------|
| MEAN | .30 | 1.30 | .63 | .62 | .16 | .097 | .45 | 2.02 | .99 | 2.12 | .61 | 1.11 |
| MAX | .30 | 1.30 | .63 | .62 | .16 | .097 | .45 | 2.02 | .99 | 2.12 | .75 | 1.55 |
| (WY) | 1993 | 1993 | 1993 | 1993 | 1993 | 1993 | 1993 | 1993 | 1993 | 1993 | 1993 | 1992 |
| MIN | .30 | 1.30 | .63 | .62 | .16 | .097 | .45 | 2.02 | .99 | 2.12 | .46 | .67 |
| (WY) | 1993 | 1993 | 1993 | 1993 | 1993 | 1993 | 1993 | 1993 | 1993 | 1993 | 1992 | 1993 |

SUMMARY STATISTICS

FOR 1993 WATER YEAR

WATER YEARS 1992 - 1993

| | | | |
|--------------------------|--------|--------|------|
| ANNUAL TOTAL | 309.56 | | |
| ANNUAL MEAN | .85 | .85 | |
| HIGHEST ANNUAL MEAN | | .85 | 1993 |
| LOWEST ANNUAL MEAN | | .85 | 1993 |
| HIGHEST DAILY MEAN | 28 | Jul 11 | 1993 |
| LOWEST DAILY MEAN | .04 | Apr 5 | 1993 |
| ANNUAL SEVEN-DAY MINIMUM | .05 | Apr 1 | 1993 |
| INSTANTANEOUS PEAK FLOW | 255 | May 14 | 1993 |
| INSTANTANEOUS PEAK STAGE | 5.40 | May 14 | 1993 |
| ANNUAL RUNOFF (AC-FT) | 614 | | |
| ANNUAL RUNOFF (CFSM) | 1.88 | | |
| ANNUAL RUNOFF (INCHRS) | 25.59 | | |
| 10 PERCENT EXCEEDS | 1.4 | | |
| 50 PERCENT EXCEEDS | .19 | | |
| 90 PERCENT EXCEEDS | .09 | | |

e Estimated

RIO DE BAYAMON BASIN

50047540 RIO SABANA AT VISTA MONTE, PR

LOCATION.--Lat 18°10'28", long 66°08'38", Hydrologic Unit 21010005, at left bank, 1.2 mi (1.9 km) southeast of Plaza de Cidra, 1.2 mi (1.9 km) southwest from Escuela Segunda Unidad de Bayamón, and 0.4 mi (0.6 km) upstream from Lago de Cidra.

DRAINAGE AREA.--0.80 mi² (2.07 km²).

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--August 1992 to current year.

GAGE.--Water-stage recorder and crest-stage gage. Elevation of gage is 1,345 ft (410 m), from topographic map.

REMARKS.--Records poor.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1991 TO SEPTEMBER 1992
DAILY MEAN VALUES

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|-------|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|------|-------|
| 1 | | | | | | | | | | | | .40 |
| 2 | | | | | | | | | | | | .39 |
| 3 | | | | | | | | | | | | .40 |
| 4 | | | | | | | | | | | e.39 | .34 |
| 5 | | | | | | | | | | | 14 | .58 |
| 6 | | | | | | | | | | | 3.0 | .94 |
| 7 | | | | | | | | | | | .78 | .44 |
| 8 | | | | | | | | | | | .64 | .57 |
| 9 | | | | | | | | | | | .64 | .66 |
| 10 | | | | | | | | | | | .60 | .34 |
| 11 | | | | | | | | | | | .70 | .33 |
| 12 | | | | | | | | | | | .58 | .32 |
| 13 | | | | | | | | | | | .61 | .32 |
| 14 | | | | | | | | | | | .68 | .33 |
| 15 | | | | | | | | | | | .86 | .37 |
| 16 | | | | | | | | | | | .54 | .64 |
| 17 | | | | | | | | | | | .48 | 1.5 |
| 18 | | | | | | | | | | | .45 | .55 |
| 19 | | | | | | | | | | | .42 | 6.5 |
| 20 | | | | | | | | | | | .40 | 12 |
| 21 | | | | | | | | | | | .38 | 4.1 |
| 22 | | | | | | | | | | | .37 | 1.7 |
| 23 | | | | | | | | | | | .37 | .72 |
| 24 | | | | | | | | | | | .35 | .37 |
| 25 | | | | | | | | | | | .35 | .35 |
| 26 | | | | | | | | | | | .39 | .33 |
| 27 | | | | | | | | | | | .34 | .35 |
| 28 | | | | | | | | | | | .69 | .36 |
| 29 | | | | | | | | | | | .46 | .40 |
| 30 | | | | | | | | | | | .35 | .38 |
| 31 | | | | | | | | | | | .39 | --- |
| TOTAL | | | | | | | | | | | --- | 36.98 |
| MEAN | | | | | | | | | | | --- | 1.23 |
| MAX | | | | | | | | | | | --- | 12 |
| MIN | | | | | | | | | | | --- | .32 |
| AC-FT | | | | | | | | | | | --- | .73 |
| CFSM | | | | | | | | | | | --- | 1.54 |
| IN. | | | | | | | | | | | --- | 1.72 |

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1992 - 1992, BY WATER YEAR (WY)

| | | |
|------|-----|------|
| MEAN | --- | 1.23 |
| MAX | --- | 1.23 |
| (WY) | --- | 1992 |
| MIN | --- | 1.23 |
| (WY) | --- | 1992 |

e Estimated

RIO DE BAYAMON BASIN

50047540 RIO SABANA AT VISTA MONTE, PR--Continued

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993
DAILY MEAN VALUES

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|-------|-------|-------|-------|-------|------|------|-------|-------|-------|-------|-------|-------|
| 1 | .41 | .60 | 1.2 | .84 | .42 | .23 | .14 | 16 | e.12 | .13 | e.47 | .29 |
| 2 | .42 | .40 | .97 | .78 | .41 | .21 | .15 | 23 | e.12 | .14 | e.46 | .31 |
| 3 | .44 | .88 | 1.2 | .78 | .44 | .19 | .15 | 3.8 | e.12 | .14 | e.44 | .26 |
| 4 | .47 | .80 | .85 | .76 | .43 | .19 | .13 | .58 | e.12 | .14 | e.43 | .23 |
| 5 | 7.7 | .47 | .75 | .79 | .42 | .18 | .14 | .34 | e.12 | .13 | e.54 | .28 |
| 6 | 1.2 | .52 | .71 | 1.1 | .40 | .17 | .14 | 1.9 | e.12 | .15 | .57 | .75 |
| 7 | .51 | .48 | .65 | 1.6 | .36 | .17 | .15 | .29 | e.12 | .11 | .55 | .21 |
| 8 | .47 | .45 | .68 | .91 | .32 | .16 | 1.1 | .28 | e.12 | .13 | .50 | .22 |
| 9 | .50 | .47 | .76 | .82 | .34 | .15 | 1.1 | .79 | e.12 | .12 | .51 | .22 |
| 10 | .50 | 3.2 | .71 | .70 | .32 | .15 | .24 | .53 | .12 | .12 | .41 | .37 |
| 11 | .50 | .54 | .70 | .64 | .31 | .14 | .94 | .36 | .12 | 49 | .44 | .20 |
| 12 | .69 | .51 | .81 | .63 | .39 | .14 | .20 | .29 | .11 | 5.3 | .41 | .18 |
| 13 | .37 | .54 | .98 | .56 | .33 | .13 | 1.7 | .23 | .12 | 1.2 | .42 | .17 |
| 14 | .42 | .55 | 1.3 | .67 | .29 | .13 | 5.6 | 18 | .12 | .80 | .40 | .18 |
| 15 | .44 | .55 | .83 | .47 | .29 | .12 | 2.1 | .77 | .15 | .68 | .44 | .18 |
| 16 | .78 | .57 | .73 | .45 | .27 | .13 | .67 | .32 | .12 | .65 | 16 | .19 |
| 17 | .60 | 1.7 | .79 | .42 | .29 | .16 | .40 | .23 | .11 | .58 | .97 | .28 |
| 18 | 1.6 | .90 | .80 | .40 | .29 | .13 | .32 | .19 | .16 | .58 | .48 | .46 |
| 19 | 2.0 | 1.1 | .77 | .40 | .27 | .14 | .38 | .17 | 7.1 | .59 | .41 | .20 |
| 20 | .48 | .71 | .74 | .41 | .36 | .13 | .57 | .15 | 6.2 | .59 | .36 | .38 |
| 21 | .52 | .54 | .68 | .40 | .29 | .12 | 1.8 | .14 | .38 | .58 | .33 | .19 |
| 22 | .59 | .73 | .86 | 1.6 | .29 | .13 | .34 | .14 | 8.3 | 2.8 | .46 | .17 |
| 23 | .67 | .61 | .72 | .61 | .29 | .14 | .35 | .17 | .71 | 2.7 | .51 | 22 |
| 24 | .77 | .58 | .88 | .42 | .28 | .13 | .34 | .14 | .30 | 20 | .28 | 1.2 |
| 25 | .54 | .58 | .87 | .49 | .27 | .11 | .37 | .20 | .21 | 2.2 | .28 | .25 |
| 26 | .47 | .60 | 9.2 | .50 | .27 | .12 | .33 | .39 | .18 | 1.0 | .27 | .18 |
| 27 | .50 | 17 | .71 | .46 | .26 | .12 | .43 | .18 | .16 | .77 | .50 | .16 |
| 28 | .50 | 4.5 | .72 | .48 | .22 | .12 | 1.5 | .15 | .14 | e.61 | .25 | .15 |
| 29 | .49 | 1.7 | .80 | 2.3 | --- | .12 | 14 | .14 | .16 | e.56 | .27 | .17 |
| 30 | .46 | 3.9 | .90 | .54 | --- | .13 | 1.1 | .13 | .16 | e.52 | .28 | .15 |
| 31 | .60 | --- | 1.1 | .44 | --- | .13 | --- | .12 | --- | e.49 | .30 | --- |
| TOTAL | 26.61 | 46.68 | 34.37 | 22.37 | 9.12 | 4.52 | 36.88 | 70.12 | 26.21 | 93.51 | 28.94 | 30.18 |
| MEAN | .86 | 1.56 | 1.11 | .72 | .33 | .15 | 1.23 | 2.26 | .87 | 3.02 | .93 | 1.01 |
| MAX | 7.7 | 17 | 9.2 | 2.3 | .44 | .23 | 14 | 23 | 8.3 | 49 | 16 | 22 |
| MIN | .37 | .40 | .65 | .40 | .22 | .11 | .13 | .12 | .11 | .11 | .25 | .15 |
| AC-FT | 53 | 93 | 68 | 44 | 18 | 9.0 | 73 | 139 | 52 | 185 | 57 | 60 |
| CFSM | 1.07 | 1.94 | 1.39 | .90 | .41 | .18 | 1.54 | 2.83 | 1.09 | 3.77 | 1.17 | 1.26 |
| IN. | 1.24 | 2.17 | 1.60 | 1.04 | .42 | .21 | 1.71 | 3.26 | 1.22 | 4.35 | 1.35 | 1.40 |

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1992 - 1993, BY WATER YEAR (WY)

| | MEAN | .86 | 1.56 | 1.11 | .72 | .33 | .15 | 1.23 | 2.26 | .87 | 3.02 | .93 | 1.12 |
|------|------|------|------|------|------|------|------|------|------|------|------|------|------|
| MAX | .86 | 1.56 | 1.11 | .72 | .33 | .15 | 1.23 | 2.26 | .87 | 3.02 | .93 | 1.23 | |
| (WY) | 1993 | 1993 | 1993 | 1993 | 1993 | 1993 | 1993 | 1993 | 1993 | 1993 | 1993 | 1993 | 1992 |
| MIN | .86 | 1.56 | 1.11 | .72 | .33 | .15 | 1.23 | 2.26 | .87 | 3.02 | .93 | 1.01 | |
| (WY) | 1993 | 1993 | 1993 | 1993 | 1993 | 1993 | 1993 | 1993 | 1993 | 1993 | 1993 | 1993 | 1993 |

SUMMARY STATISTICS

FOR 1993 WATER YEAR

WATER YEARS 1992 - 1993

| | | | | | | | | | | | | |
|--------------------------|--------|--------|--|--|--|--|--|--|-------|--------|--|------|
| ANNUAL TOTAL | 429.51 | | | | | | | | | | | |
| ANNUAL MEAN | 1.18 | | | | | | | | | | | |
| HIGHEST ANNUAL MEAN | | 1.18 | | | | | | | | | | 1993 |
| LOWEST ANNUAL MEAN | | 1.18 | | | | | | | | | | 1993 |
| HIGHEST DAILY MEAN | 49 | Jul 11 | | | | | | | 49 | Jul 11 | | 1993 |
| LOWEST DAILY MEAN | .11 | Mar 25 | | | | | | | .11 | Mar 25 | | 1993 |
| ANNUAL SEVEN-DAY MINIMUM | .12 | Jun 6 | | | | | | | .12 | Jun 6 | | 1993 |
| INSTANTANEOUS PEAK FLOW | 296 | Sep 23 | | | | | | | 296 | Sep 23 | | 1993 |
| INSTANTANEOUS PEAK STAGE | 4.63 | Sep 23 | | | | | | | 4.63 | Sep 23 | | 1993 |
| INSTANTANEOUS LOW FLOW | .11 | Mar 23 | | | | | | | .11 | Mar 23 | | 1993 |
| ANNUAL RUNOFF (AC-FT) | 852 | | | | | | | | 852 | | | |
| ANNUAL RUNOFF (CFSM) | 1.47 | | | | | | | | 1.47 | | | |
| ANNUAL RUNOFF (INCHES) | 19.97 | | | | | | | | 19.99 | | | |
| 10 PERCENT EXCEEDS | 1.2 | | | | | | | | 1.4 | | | |
| 50 PERCENT EXCEEDS | .42 | | | | | | | | .42 | | | |
| 90 PERCENT EXCEEDS | .13 | | | | | | | | .14 | | | |

e Estimated

RIO DE BAYAMON BASIN

50047550 LAGO CIDRA AT DAMSITE NEAR CIDRA, PR

LOCATION.--Lat 18°11'57", long 66°08'29", Hydrologic Unit 21010005, at Lago de Cidra Dam on Río de Bayamón, 1.9 mi (3.0 km) northeast of Plaza de Cidra and 1.8 mi (2.9 km) northwest of Escuela Segunda Unidad de Bayamón.

DRAINAGE AREA.--8.26 mi² (21.39 km²).

ELEVATION RECORDS

PERIOD OF RECORD.--January 1988 to current year.

GAGE.--Water-stage recorder. Datum of gage is mean sea level.

REMARKS.--Lago de Cidra was completed in 1946. The maximum storage is 5,300 ac-ft (6.53 hm³) and provides supplemental water to metropolitan San Juan. The dam is a concrete gravity and earthfill structure approximately 541 ft (165 m) long between abutments with a maximum structural height of about 78.7 ft (24.0 m). The spillway portion of the dam, length 131 ft (40 m) and crest elevation 1,322 ft (403 m), is an ungated ogee crest located 131 ft (40 m) from the right abutment. This dam is owned by Puerto Rico Aqueduct and Sewer Authority. Gage-height and precipitation satellite telemetry at station.

EXTREMES OBSERVED FOR PERIOD OF RECORD.--Maximum elevation 1,324.14 ft (403.60 m), July 11, 1993; minimum elevation 1,305.18 ft (397.82 m), Sept. 30, 1990.

EXTREMES OBSERVED FOR CURRENT YEAR.--Maximum elevation, 1,324.14 ft (403.60 m), July 11; minimum elevation, 1,311.77 ft (399.83 m), Apr. 8.

Capacity Table
(based on data from Puerto Rico Electric Power Authority)

| Elevation, in feet | Contents, in acre-feet | Elevation, in feet | Contents, in acre-feet |
|--------------------|------------------------|--------------------|------------------------|
| 1,305 | 1,970 | 1,319 | 4,400 |
| 1,309 | 2,610 | 1,322 | 5,200 |
| 1,312 | 3,100 | 1,328 | 6,920 |

ELEVATION (FEET NGVD), WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993
DAILY OBSERVATION AT 24:00 VALUES

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|
| 1 | 1313.89 | 1314.79 | 1317.61 | 1317.82 | 1317.49 | 1316.27 | 1312.99 | 1316.80 | 1321.40 | 1322.32 | 1322.04 | 1320.83 |
| 2 | 1313.85 | 1314.68 | 1317.73 | 1317.81 | 1317.53 | 1316.34 | 1312.75 | 1316.74 | 1321.44 | 1322.37 | 1321.93 | 1320.77 |
| 3 | 1313.80 | 1314.73 | 1317.78 | 1317.79 | 1317.63 | 1316.30 | 1312.54 | 1318.09 | 1321.46 | 1322.42 | 1321.82 | 1320.72 |
| 4 | 1313.78 | 1314.85 | 1317.84 | 1317.76 | 1317.69 | 1316.28 | 1312.31 | 1318.18 | 1321.40 | 1322.44 | 1321.72 | 1320.66 |
| 5 | 1313.83 | 1314.96 | 1317.89 | 1317.77 | 1317.72 | 1316.26 | 1312.12 | 1318.25 | 1321.34 | 1322.45 | 1321.62 | 1320.62 |
| 6 | 1314.23 | 1315.04 | 1317.95 | 1317.78 | 1317.73 | 1316.24 | 1311.98 | 1318.61 | 1321.28 | 1322.47 | 1321.52 | 1320.64 |
| 7 | 1314.60 | 1315.05 | 1317.86 | 1317.93 | 1317.73 | 1316.07 | 1311.87 | 1318.74 | 1321.23 | 1322.49 | 1321.40 | 1320.59 |
| 8 | 1314.65 | 1315.06 | 1317.84 | 1317.92 | 1317.73 | 1316.94 | 1311.96 | 1318.81 | 1321.22 | 1322.52 | 1321.30 | 1320.56 |
| 9 | 1314.69 | 1315.04 | 1317.82 | 1317.92 | A | A | 1311.90 | 1319.02 | 1321.24 | 1322.51 | 1321.18 | 1320.50 |
| 10 | 1314.67 | 1315.32 | 1317.82 | 1317.89 | A | A | 1311.85 | 1319.17 | 1321.26 | 1322.48 | 1321.08 | 1320.54 |
| 11 | 1314.58 | 1315.24 | 1317.82 | 1317.87 | A | A | 1312.02 | 1319.25 | 1321.16 | A | 1320.97 | 1320.49 |
| 12 | 1314.54 | 1315.14 | 1317.77 | 1317.85 | A | A | 1312.12 | 1319.30 | 1320.98 | 1322.56 | 1320.85 | 1320.43 |
| 13 | 1314.60 | 1314.99 | 1317.64 | 1317.82 | A | A | 1312.52 | 1319.34 | 1320.83 | 1322.49 | 1320.73 | 1320.39 |
| 14 | 1314.62 | 1314.91 | 1317.74 | 1317.83 | A | 1315.00 | 1313.06 | 1320.70 | 1320.79 | 1322.43 | 1320.62 | 1320.38 |
| 15 | 1314.58 | 1314.86 | 1317.77 | 1317.78 | A | 1314.88 | 1314.06 | 1320.80 | 1320.84 | 1322.41 | 1320.53 | 1320.35 |
| 16 | 1314.49 | 1314.82 | 1317.74 | 1317.74 | A | 1314.87 | 1314.20 | 1320.83 | 1320.87 | 1322.40 | 1321.79 | 1320.34 |
| 17 | 1314.50 | 1314.99 | 1317.69 | 1317.70 | A | 1314.90 | 1314.28 | 1320.85 | 1320.86 | 1322.35 | 1321.82 | 1320.36 |
| 18 | 1314.58 | 1315.24 | 1317.63 | 1317.65 | 1317.64 | 1314.88 | 1314.33 | 1320.86 | 1320.79 | 1322.22 | 1321.82 | 1320.51 |
| 19 | 1314.64 | 1315.38 | 1317.57 | 1317.61 | 1317.51 | 1314.79 | 1314.32 | 1320.86 | 1321.54 | 1322.10 | 1321.74 | 1320.49 |
| 20 | 1314.86 | 1315.44 | 1317.51 | 1317.55 | 1317.44 | 1314.60 | 1314.36 | 1320.92 | 1321.76 | 1321.92 | 1321.64 | 1320.53 |
| 21 | 1314.94 | 1315.45 | 1317.40 | 1317.51 | 1317.27 | 1314.45 | 1314.60 | 1320.96 | 1321.80 | 1321.79 | 1321.55 | 1320.51 |
| 22 | 1314.96 | 1315.42 | 1317.29 | 1317.67 | 1317.09 | 1314.36 | 1314.62 | 1321.01 | 1322.16 | 1322.07 | 1321.55 | 1320.51 |
| 23 | 1315.01 | 1315.33 | 1317.10 | 1317.66 | 1316.91 | 1314.25 | 1314.62 | 1321.09 | 1322.24 | 1322.33 | 1321.50 | 1321.68 |
| 24 | 1315.07 | 1315.30 | 1316.90 | 1317.63 | 1316.65 | 1314.09 | 1314.61 | 1321.10 | 1322.28 | 1322.67 | 1321.42 | 1321.76 |
| 25 | 1315.16 | 1315.35 | 1316.71 | 1317.61 | 1316.46 | 1313.88 | 1314.60 | 1321.12 | 1322.25 | 1322.50 | 1321.36 | 1321.79 |
| 26 | 1315.19 | 1315.34 | 1317.78 | 1317.57 | 1316.39 | 1313.72 | 1314.62 | 1321.21 | 1322.13 | 1322.46 | 1321.28 | 1321.81 |
| 27 | 1315.17 | 1316.20 | 1317.83 | 1317.53 | 1316.31 | 1313.62 | 1314.55 | 1321.21 | 1322.15 | 1322.41 | 1321.24 | 1321.81 |
| 28 | 1315.10 | 1316.83 | 1317.82 | 1317.51 | 1316.29 | 1313.50 | 1314.58 | 1321.19 | 1322.17 | 1322.38 | 1321.14 | 1321.80 |
| 29 | 1315.02 | 1317.01 | 1317.83 | 1317.61 | --- | 1313.36 | 1315.46 | 1321.26 | 1322.23 | 1322.34 | 1321.04 | 1321.83 |
| 30 | 1314.92 | 1317.43 | 1317.81 | 1317.57 | --- | 1313.19 | 1315.60 | 1321.30 | 1322.28 | 1322.24 | 1320.95 | 1321.82 |
| 31 | 1314.85 | --- | 1317.83 | 1317.53 | --- | 1313.05 | --- | 1321.35 | --- | 1322.14 | 1320.89 | --- |
| MEAN | 1314.62 | 1315.34 | 1317.66 | 1317.72 | --- | --- | 1313.51 | 1319.96 | 1321.51 | --- | 1321.36 | 1320.87 |
| MAX | 1315.19 | 1317.43 | 1317.95 | 1317.93 | --- | --- | 1315.60 | 1321.35 | 1322.28 | --- | 1322.04 | 1321.83 |
| MIN | 1313.78 | 1314.68 | 1316.71 | 1317.51 | --- | --- | 1311.85 | 1316.74 | 1320.79 | --- | 1320.53 | 1320.34 |

A No gage-height record

RIO DE BAYAMON BASIN

50047560 RIO DE BAYAMON BELOW LAGO CIDRA, PR

LOCATION.--Lat 18°12'04", long 66°08'26", Hydrologic Unit 21010005, 0.2 mi (0.3 km) downstream of Lago Cidra Dam on right bank, 2.1 mi (3.4 km) northwest of Plaza de Cidra.

DRAINAGE AREA.--8.31 mi² (21.5 km²).

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--November 1990 to current year.

GAGE.--Water-stage recorder. Elevation of gage is 1,279 ft (390 m), from topographic map.

REMARKS.--Records poor. Regulation at all stages by Puerto Rico Aqueduct and Sewer Authority reservoir upstream from gage. Gage-height and precipitation satellite telemetry at station.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993
DAILY MEAN VALUES

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|--------|-------|-------|
| 1 | 21 | 21 | 2.5 | 9.2 | 8.1 | 7.1 | 8.7 | 5.3 | 4.4 | 3.3 | 16 | 15 |
| 2 | 26 | 22 | 6.2 | 9.0 | 8.2 | 7.2 | 33 | 4.1 | 4.3 | 3.6 | 17 | 15 |
| 3 | 26 | 24 | 19 | 8.8 | 6.9 | 7.5 | 34 | 3.6 | 4.3 | 5.1 | 17 | 15 |
| 4 | 17 | 9.3 | 11 | 8.8 | 5.7 | 7.2 | 31 | 3.6 | 29 | 7.0 | 16 | 14 |
| 5 | 9.1 | 2.6 | 10 | 8.8 | 9.7 | 7.1 | 23 | 3.7 | 14 | 7.3 | 16 | 15 |
| 6 | 10 | 10 | 11 | 8.6 | 16 | 6.9 | 15 | 5.1 | 13 | 7.9 | 17 | 15 |
| 7 | 9.9 | 14 | 27 | 9.3 | 16 | 35 | 9.3 | 3.4 | 14 | 9.5 | 16 | 15 |
| 8 | 10 | 14 | 16 | 8.6 | 15 | 22 | 16 | 3.8 | 8.2 | 10 | 16 | 15 |
| 9 | 10 | 19 | 11 | 8.5 | 16 | 7.0 | 23 | 3.8 | 4.0 | 9.9 | 17 | 15 |
| 10 | 28 | 39 | 11 | 8.3 | 16 | 8.3 | 11 | 3.6 | 4.2 | 8.6 | 16 | 15 |
| 11 | 41 | 37 | 11 | 8.2 | 14 | 35 | 4.4 | 3.6 | 36 | 632 | 17 | 15 |
| 12 | 26 | 37 | 21 | 8.1 | 7.7 | 35 | 4.3 | 3.5 | 56 | 143 | 16 | 15 |
| 13 | 20 | 38 | 55 | 8.0 | 5.3 | 35 | 6.6 | 3.6 | 55 | 24 | 16 | 13 |
| 14 | 20 | 18 | 24 | 8.2 | 5.4 | 35 | 4.8 | 7.7 | 19 | 13 | 16 | 11 |
| 15 | 20 | 9.9 | 9.2 | 8.0 | 6.4 | 17 | 11 | 3.7 | 4.0 | 6.3 | 16 | 10 |
| 16 | 20 | 10 | 6.1 | 7.9 | 11 | 9.4 | 3.5 | 3.6 | 4.0 | 5.7 | 12 | 9.9 |
| 17 | 20 | 10 | 6.2 | 8.2 | 10 | 9.0 | 3.6 | 3.5 | 16 | 7.7 | 5.5 | 9.9 |
| 18 | 23 | 5.0 | 6.2 | 8.3 | 10 | 8.3 | 3.8 | 3.8 | 49 | 17 | 5.9 | 12 |
| 19 | 13 | 2.8 | 5.9 | 8.4 | 6.0 | 22 | 8.6 | 3.6 | 17 | 17 | 14 | 9.4 |
| 20 | 6.9 | 17 | 6.0 | 8.8 | 4.1 | 35 | 12 | 3.8 | 4.1 | 17 | 14 | 7.7 |
| 21 | 4.7 | 23 | 16 | 8.5 | 9.6 | 26 | 3.8 | 3.8 | 4.0 | 17 | 14 | 5.6 |
| 22 | 6.8 | 49 | 32 | 8.6 | 9.7 | 15 | 3.6 | 4.0 | 3.8 | 19 | 15 | 5.5 |
| 23 | 6.3 | 51 | 39 | 8.2 | 9.7 | 20 | 3.6 | 4.0 | 3.7 | 11 | 15 | 6.1 |
| 24 | 6.5 | 32 | 41 | 8.1 | 10 | 35 | 3.5 | 4.1 | 3.6 | 104 | 12 | 5.5 |
| 25 | 6.3 | 8.6 | 39 | 8.1 | 10 | 34 | 3.5 | 4.3 | 28 | 43 | 11 | 5.2 |
| 26 | 13 | 8.7 | 39 | 8.1 | 14 | 24 | 3.6 | 5.8 | 51 | 19 | 12 | 5.1 |
| 27 | 21 | 12 | 9.6 | 8.2 | 14 | 16 | 13 | 4.3 | 3.4 | 13 | 14 | 7.6 |
| 28 | 23 | 9.7 | 9.2 | 8.3 | 7.1 | 16 | 14 | 4.4 | 3.6 | 7.9 | 15 | 11 |
| 29 | 23 | 10 | 9.7 | 7.9 | --- | 17 | 11 | 4.3 | 3.3 | 7.5 | 15 | 11 |
| 30 | 22 | 6.0 | 9.4 | 8.0 | --- | 16 | 3.8 | 4.4 | 3.4 | 15 | 15 | 10 |
| 31 | 21 | --- | 9.5 | 8.2 | --- | 16 | --- | 4.1 | --- | 15 | 15 | --- |
| TOTAL | 530.5 | 569.6 | 528.7 | 260.2 | 281.6 | 591.0 | 330.0 | 127.9 | 467.3 | 1226.3 | 449.4 | 334.5 |
| MEAN | 17.1 | 19.0 | 17.1 | 8.39 | 10.1 | 19.1 | 11.0 | 4.13 | 15.6 | 39.6 | 14.5 | 11.1 |
| MAX | 41 | 51 | 55 | 9.3 | 16 | 35 | 34 | 7.7 | 56 | 632 | 17 | 15 |
| MIN | 4.7 | 2.6 | 2.5 | 7.9 | 4.1 | 6.9 | 3.5 | 3.4 | 3.3 | 3.3 | 5.5 | 5.1 |
| AC-FT | 1050 | 1130 | 1050 | 516 | 559 | 1170 | 655 | 254 | 927 | 2430 | 891 | 663 |
| CFSM | 2.06 | 2.28 | 2.05 | 1.01 | 1.21 | 2.29 | 1.32 | .50 | 1.87 | 4.75 | 1.74 | 1.34 |
| IN. | 2.37 | 2.55 | 2.36 | 1.16 | 1.26 | 2.64 | 1.48 | .57 | 2.09 | 5.48 | 2.01 | 1.50 |

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1991 - 1993, BY WATER YEAR (WY)

| | MEAN | 33.5 | 19.9 | 27.6 | 23.3 | 18.7 | 15.4 | 8.82 | 15.2 | 23.6 | 18.3 | 13.8 |
|------|------|------|------|------|------|------|------|------|------|------|------|------|
| MAX | 20.5 | 41.2 | 30.4 | 59.6 | 36.5 | 23.7 | 23.0 | 12.2 | 17.8 | 39.6 | 27.5 | 16.0 |
| (WY) | 1992 | 1992 | 1992 | 1992 | 1991 | 1992 | 1992 | 1991 | 1992 | 1993 | 1991 | 1991 |
| MIN | 17.1 | 19.0 | 12.4 | 8.39 | 10.1 | 13.4 | 11.0 | 4.13 | 12.1 | 11.7 | 12.8 | 11.1 |
| (WY) | 1993 | 1993 | 1991 | 1993 | 1993 | 1991 | 1993 | 1993 | 1991 | 1991 | 1992 | 1993 |

SUMMARY STATISTICS

FOR 1992 CALENDAR YEAR

FOR 1993 WATER YEAR

WATER YEARS 1991 - 1993

| | | | |
|--------------------------|---------|--------|-------|
| ANNUAL TOTAL | 7862.71 | 5697.0 | |
| ANNUAL MEAN | 21.5 | 15.6 | 20.2 |
| HIGHEST ANNUAL MEAN | | | 24.7 |
| LOWEST ANNUAL MEAN | | | 15.6 |
| HIGHEST DAILY MEAN | 981 | 632 | 981 |
| LOWEST DAILY MEAN | .60 | 2.5 | .60 |
| ANNUAL SEVEN-DAY MINIMUM | 1.7 | 3.6 | 1.7 |
| INSTANTANEOUS PEAK FLOW | | 2090 | 2090 |
| INSTANTANEOUS PEAK STAGE | | 16.56 | 16.56 |
| ANNUAL RUNOFF (AC-FT) | 15600 | 11300 | 14610 |
| ANNUAL RUNOFF (CFSM) | 2.58 | 1.88 | 2.42 |
| ANNUAL RUNOFF (INCHES) | 35.16 | 25.47 | 32.94 |
| 10 PERCENT EXCEEDS | 32 | 28 | 34 |
| 50 PERCENT EXCEEDS | 16 | 10 | 13 |
| 90 PERCENT EXCEEDS | 5.8 | 3.8 | 4.4 |

RIO DE BAYAMON BASIN

50047560 RIO DE BAYAMON BELOW LAGO CIDRA, PR--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORDS.-- Water years 1991 to current year.

PERIOD OF DAILY RECORD.--

SUSPENDED-SEDIMENT DISCHARGE: November 1990 to September 1993.

INSTRUMENTATION.-- DH-48 and automatic sediment sampler.

EXTREMES FOR PERIOD OF DAILY RECORD.--

SEDIMENT CONCENTRATION: Maximum daily mean, 3,670 mg/L Jan. 05, 1992; Minimum daily mean, 6 mg/L Sep. 01, 1991.

SEDIMENT LOADS: Maximum daily mean, 9,830 tons (8,920 tonnes) Jan. 05, 1992; Minimum daily mean, 0.04 ton (0.03 tonne) Aug 09-10, 1992.

EXTREMES FOR WATER YEAR 1993.--

| Water Year | Suspended-sediment concentration (mg/L) | | Suspended-sediment discharge (tons per day) | |
|------------|---|-------------------|---|---------------|
| | maximum | minimum | maximum | minimum |
| 1993 | 473 (July 24) | 13 (Several days) | 269 (July 11) | .10 (Nov. 05) |

SEDIMENT DISCHARGE, SUSPENDED (TONS/DAY), WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993

| DAY | MEAN DISCHARGE (CFS) | MEAN CONCENTRATION (MG/L) | SEDIMENT DISCHARGE (TONS/DAY) | MEAN DISCHARGE (CFS) | MEAN CONCENTRATION (MG/L) | SEDIMENT DISCHARGE (TONS/DAY) | MEAN DISCHARGE (CFS) | MEAN CONCENTRATION (MG/L) | SEDIMENT DISCHARGE (TONS/DAY) |
|---------|----------------------|---------------------------|-------------------------------|----------------------|---------------------------|-------------------------------|----------------------|---------------------------|-------------------------------|
| | | | | | | | | | |
| OCTOBER | | | | | | | | | |
| 1 | 21 | 194 | 13 | 21 | 17 | .98 | 2.5 | 15 | .11 |
| 2 | 26 | 430 | 29 | 22 | 16 | .95 | 6.2 | 17 | .28 |
| 3 | 26 | 470 | 32 | 24 | 15 | .98 | 19 | 19 | .99 |
| 4 | 17 | 438 | 21 | 9.3 | 14 | .35 | 11 | 21 | .61 |
| 5 | 9.1 | 63 | 1.6 | 2.6 | 14 | .10 | 10 | 23 | .62 |
| 6 | 10 | 24 | .79 | 10 | 14 | .41 | 11 | 24 | .72 |
| 7 | 9.9 | 21 | .56 | 14 | 13 | .46 | 27 | 25 | 1.9 |
| 8 | 10 | 22 | .56 | 14 | 13 | .46 | 16 | 25 | 1.1 |
| 9 | 10 | 22 | .57 | 19 | 15 | .80 | 11 | 25 | .71 |
| 10 | 28 | 22 | 1.6 | 39 | 39 | 3.9 | 11 | 25 | .71 |
| 11 | 41 | 21 | 2.2 | 37 | 75 | 7.5 | 11 | 24 | .73 |
| 12 | 26 | 19 | 1.4 | 37 | 70 | 7.0 | 21 | 23 | 1.2 |
| 13 | 20 | 18 | .90 | 38 | 36 | 3.5 | 55 | 21 | 3.0 |
| 14 | 20 | 17 | .88 | 18 | 20 | .90 | 24 | 20 | 1.3 |
| 15 | 20 | 17 | .88 | 9.9 | 17 | .42 | 9.2 | 20 | .47 |
| 16 | 20 | 17 | .85 | 10 | 14 | .34 | 6.1 | 20 | .31 |
| 17 | 20 | 16 | .79 | 10 | 16 | .53 | 6.2 | 20 | .32 |
| 18 | 23 | 28 | 2.3 | 5.0 | 13 | .18 | 6.2 | 20 | .33 |
| 19 | 13 | 19 | .77 | 2.8 | 17 | .12 | 5.9 | 20 | .31 |
| 20 | 6.9 | 25 | .55 | 17 | 22 | 1.1 | 6.0 | 20 | .31 |
| 21 | 4.7 | 13 | .15 | 23 | 23 | 1.4 | 16 | 20 | .82 |
| 22 | 6.8 | 14 | .24 | 49 | 23 | 3.0 | 32 | 20 | 1.8 |
| 23 | 6.3 | 15 | .22 | 51 | 23 | 3.1 | 39 | 20 | 2.1 |
| 24 | 6.5 | 17 | .30 | 32 | 22 | 1.9 | 41 | 20 | 2.0 |
| 25 | 6.3 | 22 | .35 | 8.6 | 19 | .43 | 39 | 20 | 2.1 |
| 26 | 13 | 32 | 1.2 | 8.7 | 17 | .40 | 39 | 331 | 104 |
| 27 | 21 | 34 | 1.7 | 12 | 23 | 1.2 | 9.6 | 90 | 2.4 |
| 28 | 23 | 24 | 1.4 | 9.7 | 15 | .36 | 9.2 | 87 | 2.0 |
| 29 | 23 | 23 | 1.3 | 10 | 16 | .45 | 9.7 | 82 | 2.0 |
| 30 | 22 | 21 | 1.2 | 6.0 | 20 | .53 | 9.4 | 67 | 1.6 |
| 31 | 21 | 19 | 1.1 | --- | --- | --- | 9.5 | 56 | 1.4 |
| TOTAL | 530.5 | --- | 121.36 | 569.6 | --- | 43.75 | 528.7 | --- | 138.25 |

RIO DE BAYAMON BASIN

50047560 RIO DE BAYAMON BELOW LAGO CIDRA, PR--Continued

SEDIMENT DISCHARGE, SUSPENDED (TONS/DAY), WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993

| DAY | MEAN DISCHARGE (CFS) | MEAN CONCEN- TRATION (MG/L) | SEDIMENT DISCHARGE (TONS/DAY) | MEAN DISCHARGE (CFS) | MEAN CONCEN- TRATION (MG/L) | SEDIMENT DISCHARGE (TONS/DAY) | MEAN DISCHARGE (CFS) | MEAN CONCEN- TRATION (MG/L) | SEDIMENT DISCHARGE (TONS/DAY) |
|---------|----------------------------|--------------------------------------|-------------------------------------|----------------------------|--------------------------------------|-------------------------------------|----------------------------|--------------------------------------|-------------------------------------|
| JANUARY | | | FEBRUARY | | | MARCH | | | |
| 1 | 9.2 | 46 | 1.1 | 8.1 | 12 | .26 | 7.1 | 12 | .22 |
| 2 | 9.0 | 49 | 1.2 | 8.2 | 18 | .37 | 7.2 | 8 | .16 |
| 3 | 8.8 | 63 | 1.4 | 6.9 | 39 | .66 | 7.5 | 7 | .14 |
| 4 | 8.8 | 70 | 1.6 | 5.7 | 55 | .79 | 7.2 | 7 | .14 |
| 5 | 8.8 | 60 | 1.3 | 9.7 | 51 | 1.3 | 7.1 | 7 | .14 |
| 6 | 8.6 | 35 | .77 | 16 | 34 | 1.4 | 6.9 | 8 | .14 |
| 7 | 9.3 | 19 | .45 | 16 | 19 | .75 | 35 | 59 | 5.3 |
| 8 | 8.6 | 14 | .31 | 15 | 11 | .44 | 22 | 40 | 2.4 |
| 9 | 8.5 | 12 | .26 | 16 | 10 | .40 | 7.0 | 15 | .26 |
| 10 | 8.3 | 11 | .23 | 16 | 10 | .42 | 8.3 | 9 | .33 |
| 11 | 8.2 | 10 | .22 | 14 | 12 | .43 | 35 | 60 | 5.6 |
| 12 | 8.1 | 10 | .22 | 7.7 | 16 | .33 | 35 | 60 | 5.6 |
| 13 | 8.0 | 10 | .21 | 5.3 | 19 | .26 | 35 | 60 | 5.5 |
| 14 | 8.2 | 12 | .26 | 5.4 | 18 | .24 | 35 | 60 | 5.6 |
| 15 | 8.0 | 16 | .33 | 6.4 | 14 | .24 | 17 | 39 | 2.2 |
| 16 | 7.9 | 20 | .41 | 11 | 12 | .34 | 9.4 | 28 | .68 |
| 17 | 8.2 | 28 | .59 | 10 | 11 | .27 | 9.0 | 27 | .62 |
| 18 | 8.3 | 38 | .81 | 10 | 13 | .33 | 8.3 | 27 | .58 |
| 19 | 8.4 | 43 | .92 | 6.0 | 14 | .23 | 22 | 46 | 3.5 |
| 20 | 8.8 | 41 | .94 | 4.1 | 15 | .15 | 35 | 58 | 5.1 |
| 21 | 8.5 | 34 | .77 | 9.6 | 14 | .35 | 26 | 52 | 3.7 |
| 22 | 8.6 | 22 | .51 | 9.7 | 13 | .31 | 15 | 35 | 1.5 |
| 23 | 8.2 | 14 | .29 | 9.7 | 12 | .30 | 20 | 42 | 2.8 |
| 24 | 8.1 | 12 | .24 | 10 | 10 | .26 | 35 | 60 | 5.5 |
| 25 | 8.1 | 14 | .30 | 10 | 10 | .25 | 34 | 60 | 5.4 |
| 26 | 8.1 | 18 | .37 | 14 | 11 | .44 | 24 | 48 | 3.0 |
| 27 | 8.2 | 26 | .56 | 14 | 14 | .53 | 16 | 38 | 1.5 |
| 28 | 8.3 | 37 | .79 | 7.1 | 14 | .26 | 16 | 38 | 1.6 |
| 29 | 7.9 | 41 | .85 | --- | --- | --- | 17 | 38 | 1.6 |
| 30 | 8.0 | 33 | .70 | --- | --- | --- | 16 | 38 | 1.6 |
| 31 | 8.2 | 22 | .48 | --- | --- | --- | 16 | 38 | 1.6 |
| TOTAL | 260.2 | --- | 19.39 | 281.6 | --- | 12.31 | 591.0 | --- | 74.01 |

RIO DE BAYAMON BASIN

50047560 RIO DE BAYAMON BELOW LAGO CIDRA, PR--Continued

SEDIMENT DISCHARGE, SUSPENDED (TONS/DAY), WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993

| DAY | MEAN DISCHARGE (CFS) | MEAN CONCEN- TRATION (MG/L) | SEDIMENT DISCHARGE (TONS/DAY) | MEAN DISCHARGE (CFS) | MEAN CONCEN- TRATION (MG/L) | SEDIMENT DISCHARGE (TONS/DAY) | MEAN DISCHARGE (CFS) | MEAN CONCEN- TRATION (MG/L) | SEDIMENT DISCHARGE (TONS/DAY) |
|-------|----------------------------|--------------------------------------|-------------------------------------|----------------------------|--------------------------------------|-------------------------------------|----------------------------|--------------------------------------|-------------------------------------|
| APRIL | | | MAY | | | JUNE | | | |
| 1 | 8.7 | 26 | .75 | 5.3 | 22 | .48 | 4.4 | 20 | .24 |
| 2 | 33 | 59 | 5.1 | 4.1 | 19 | .20 | 4.3 | 20 | .24 |
| 3 | 34 | 60 | 5.4 | 3.6 | 18 | .18 | 4.3 | 20 | .25 |
| 4 | 31 | 58 | 4.9 | 3.6 | 17 | .16 | 29 | 51 | 6.6 |
| 5 | 23 | 223 | 10 | 3.7 | 17 | .16 | 14 | 33 | 1.2 |
| 6 | 15 | 31 | 1.2 | 5.1 | 20 | .40 | 13 | 29 | 1.1 |
| 7 | 9.3 | 13 | .37 | 3.4 | 19 | .19 | 14 | 25 | .93 |
| 8 | 16 | 33 | 1.5 | 3.8 | 20 | .21 | 8.2 | 19 | .48 |
| 9 | 23 | 47 | 2.9 | 3.8 | 24 | .27 | 4.0 | 18 | .22 |
| 10 | 11 | 45 | 1.5 | 3.6 | 27 | .28 | 4.2 | 18 | .22 |
| 11 | 4.4 | 40 | .43 | 3.6 | 31 | .32 | 36 | 19 | 1.9 |
| 12 | 4.3 | 36 | .38 | 3.5 | 32 | .32 | 56 | 20 | 3.1 |
| 13 | 6.6 | 45 | 1.1 | 3.6 | 31 | .31 | 55 | 24 | 3.6 |
| 14 | 4.8 | 56 | .76 | 7.7 | 31 | 1.3 | 19 | 26 | 1.3 |
| 15 | 11 | 149 | 56 | 3.7 | 24 | .25 | 4.0 | 32 | .37 |
| 16 | 3.5 | 18 | .18 | 3.6 | 23 | .23 | 4.0 | 37 | .44 |
| 17 | 3.6 | 16 | .15 | 3.5 | 22 | .22 | 16 | 48 | 2.2 |
| 18 | 3.8 | 15 | .14 | 3.8 | 20 | .23 | 49 | 57 | 7.6 |
| 19 | 8.6 | 15 | .33 | 3.6 | 20 | .22 | 17 | 67 | 3.4 |
| 20 | 12 | 15 | .48 | 3.8 | 22 | .23 | 4.1 | 72 | .91 |
| 21 | 3.8 | 17 | .17 | 3.8 | 24 | .26 | 4.0 | 52 | .62 |
| 22 | 3.6 | 20 | .18 | 4.0 | 24 | .28 | 3.8 | 32 | .37 |
| 23 | 3.6 | 23 | .21 | 4.0 | 25 | .29 | 3.7 | 20 | .21 |
| 24 | 3.5 | 26 | .23 | 4.1 | 25 | .30 | 3.6 | 18 | .21 |
| 25 | 3.5 | 31 | .27 | 4.3 | 26 | .31 | 28 | 25 | 1.9 |
| 26 | 3.6 | 35 | .31 | 5.8 | 27 | .40 | 51 | 27 | 3.7 |
| 27 | 13 | 37 | 1.3 | 4.3 | 25 | .32 | 3.4 | 27 | .23 |
| 28 | 14 | 35 | 1.3 | 4.4 | 24 | .30 | 3.6 | 23 | .22 |
| 29 | 11 | 30 | 1.3 | 4.3 | 22 | .27 | 3.3 | 23 | .19 |
| 30 | 3.8 | 19 | .20 | 4.4 | 21 | .27 | 3.4 | 17 | .14 |
| 31 | --- | --- | --- | 4.1 | 20 | .25 | --- | --- | --- |
| TOTAL | 330.0 | --- | 99.04 | 127.9 | --- | 9.41 | 467.3 | --- | 44.09 |

RIO DE BAYAMON BASIN

50047560 RIO DE BAYAMON BELOW LAGO CIDRA, PR--Continued

SEDIMENT DISCHARGE, SUSPENDED (TONS/DAY), WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993

| DAY | MEAN DISCHARGE (CFS) | MEAN CONCEN- TRATION (MG/L) | SEDIMENT DISCHARGE (TONS/DAY) | MEAN DISCHARGE (CFS) | MEAN CONCEN- TRATION (MG/L) | SEDIMENT DISCHARGE (TONS/DAY) | MEAN DISCHARGE (CFS) | MEAN CONCEN- TRATION (MG/L) | SEDIMENT DISCHARGE (TONS/DAY) |
|-------|----------------------------|--------------------------------------|-------------------------------------|----------------------------|--------------------------------------|-------------------------------------|----------------------------|--------------------------------------|-------------------------------------|
| JULY | | | AUGUST | | | SEPTEMBER | | | |
| 1 | 3.3 | 17 | .14 | 16 | 32 | 1.4 | 15 | 45 | 1.7 |
| 2 | 3.6 | 18 | .15 | 17 | 29 | 1.2 | 15 | 45 | 1.7 |
| 3 | 5.1 | 19 | .26 | 17 | 27 | 1.2 | 15 | 43 | 1.6 |
| 4 | 7.0 | 20 | .35 | 16 | 27 | 1.2 | 14 | 41 | 1.5 |
| 5 | 7.3 | 20 | .35 | 16 | 29 | 1.2 | 15 | 42 | 1.6 |
| 6 | 7.9 | 19 | .38 | 17 | 32 | 1.4 | 15 | 46 | 1.7 |
| 7 | 9.5 | 17 | .42 | 16 | 36 | 1.6 | 15 | 48 | 1.8 |
| 8 | 10 | 16 | .39 | 16 | 39 | 1.7 | 15 | 44 | 1.7 |
| 9 | 9.9 | 15 | .35 | 17 | 39 | 1.7 | 15 | 37 | 1.4 |
| 10 | 8.6 | 15 | .33 | 16 | 36 | 1.6 | 15 | 30 | 1.1 |
| 11 | 632 | 238 | 269 | 17 | 34 | 1.5 | 15 | 27 | 1.0 |
| 12 | 143 | 31 | 12 | 16 | 32 | 1.4 | 15 | 26 | 1.1 |
| 13 | 24 | 39 | 2.5 | 16 | 30 | 1.3 | 13 | 26 | .86 |
| 14 | 13 | 48 | 1.8 | 16 | 29 | 1.2 | 11 | 26 | .69 |
| 15 | 6.3 | 57 | 1.0 | 16 | 28 | 1.2 | 10 | 27 | .71 |
| 16 | 5.7 | 61 | .84 | 12 | 45 | 1.8 | 9.9 | 27 | .68 |
| 17 | 7.7 | 61 | 1.3 | 5.5 | 57 | .82 | 9.9 | 27 | .69 |
| 18 | 17 | 60 | 2.6 | 5.9 | 65 | .99 | 12 | 31 | 1.2 |
| 19 | 17 | 50 | 2.2 | 14 | 74 | 2.7 | 9.4 | 34 | .80 |
| 20 | 17 | 34 | 1.5 | 14 | 80 | 3.0 | 7.7 | 40 | .75 |
| 21 | 17 | 18 | .79 | 14 | 82 | 3.1 | 5.6 | 46 | .68 |
| 22 | 19 | 10 | .46 | 15 | 82 | 3.1 | 5.5 | 53 | .77 |
| 23 | 11 | 10 | .30 | 15 | 81 | 3.1 | 6.1 | 70 | 1.2 |
| 24 | 104 | 473 | 172 | 12 | 73 | 2.3 | 5.5 | 58 | .77 |
| 25 | 43 | 19 | 2.2 | 11 | 58 | 1.6 | 5.2 | 50 | .66 |
| 26 | 19 | 20 | 1.0 | 12 | 46 | 1.4 | 5.1 | 49 | .64 |
| 27 | 13 | 22 | .82 | 14 | 40 | 1.4 | 7.6 | 48 | .93 |
| 28 | 7.9 | 22 | .45 | 15 | 37 | 1.4 | 11 | 47 | 1.3 |
| 29 | 7.5 | 21 | .42 | 15 | 35 | 1.3 | 11 | 46 | 1.2 |
| 30 | 15 | 37 | 1.4 | 15 | 37 | 1.4 | 10 | 45 | 1.2 |
| 31 | 15 | 35 | 1.5 | 15 | 42 | 1.6 | --- | --- | --- |
| TOTAL | 1226.3 | --- | 479.20 | 449.4 | --- | 51.81 | 334.5 | --- | 33.63 |
| YEAR | 5697.0 | | 1126.25 | | | | | | |

RIO DE BAYAMON BASIN

50047560 RIO DE BAYAMON BELOW LAGO CIDRA PR--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993

PARTICLE-SIZE DISTRIBUTION OF SUSPENDED SEDIMENT

| DATE | TIME | DIS- CHARGE, INST. CUBIC FEET PER SECOND | SEDI- MENT, DIS- CHARGE, SUS- PENDE (MG/L) | SEDI- MENT, DIS- CHARGE, SUS- PENDE (T/DAY) | SED. SUSP. FALL DIAM. PERCENT FINER THAN .002 MM | SED. SUSP. FALL DIAM. PERCENT FINER THAN .004 MM | SED. SUSP. FALL DIAM. PERCENT FINER THAN .008 MM |
|----------|------|--|--|---|---|---|---|
| DEC 1992 | | | | | | | |
| 26... | 1330 | 125 | 4280 | 1440 | 58 | 66 | 76 |
| MAY 1993 | | | | | | | |
| 06... | 1750 | 6.3 | 1540 | 26 | 70 | 79 | -- |
| JUL | | | | | | | |
| 11... | 1055 | 297 | 1920 | 1540 | 69 | 76 | 80 |

| DATE | SED. SUSP. FALL DIAM. PERCENT FINER THAN .016 MM | SED. SUSP. FALL DIAM. PERCENT FINER THAN .031 MM | SED. SUSP. SIEVE DIAM. PERCENT FINER THAN .062 MM | SED. SUSP. SIEVE DIAM. PERCENT FINER THAN .125 MM | SED. SUSP. SIEVE DIAM. PERCENT FINER THAN .250 MM | SED. SUSP. SIEVE DIAM. PERCENT FINER THAN .500 MM | SED. SUSP. SIEVE DIAM. PERCENT FINER THAN 1.00 MM |
|----------|---|---|--|--|--|--|--|
| DEC 1992 | | | | | | | |
| 26... | 83 | 87 | 98 | 98 | 99 | 100 | 100 |
| MAY 1993 | | | | | | | |
| 06... | 85 | 91 | 98.6 | 99.2 | 99.5 | 99.9 | 99.9 |
| JUL | | | | | | | |
| 11... | 87 | 92 | 99.6 | 99.8 | 99.8 | 99.8 | 100 |

RIO DE BAYAMON BASIN

50047560 RIO DE BAYAMON BELOW LAGO CIDRA , PR--Continued
 WATER QUALITY DATA, WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993
 SILT AND CLAY PERCENT OF SUSPENDED SEDIMENT

| DATE | TIME | STREAM- FLOW, INSTAN- TANEOUS (CFS) | SEDI- MENT, SUS- PENDED (MG/L) | SEDI- MENT, DIS- CHARGE, SUS- PENDED (T/DAY) | SED. SUSP. SIEVE DIAM. PERCENT FINER THAN .062 MM |
|----------|------|---|--|--|--|
| APR 1993 | | | | | |
| 08... | 1730 | 32 | 206 | 18 | 99 |
| MAY | | | | | |
| 23... | 1630 | 4.3 | 138 | 1.6 | 99 |
| JUL | | | | | |
| 11... | 1025 | 135 | 1340 | 488 | 97 |

RIO DE BAYAMON BASIN

50047600 RIO DE BAYAMON NEAR AGUAS BUENAS, PR

WATER-QUALITY RECORDS

LOCATION.--Lat 18°14'39", long 66°08'39", at bridge on Highway 156, and 2.9 mi (4.7 km) west of Aguas Buenas plaza.

DRAINAGE AREA.--18.5 mi² (47.9 km²).

PERIOD OF RECORD.--Water years 1958-65, 1974 to current year.

WATER-QUALITY DATA, WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993

| DATE | TIME | DIS-CHARGE, INST. CUBIC FEET PER SECOND | SPE-CIFIC CON-DUCT-ANCE (US/CM) | PH WATER WHOLE FIELD (STAND-ARD UNITS) | TEMPER-ATURE WATER (DEG C) | TUR-BID-ITY (NTU) | OXYGEN, DIS-SOLVED (MG/L) | OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION) | OXYGEN DEMAND, CHEM-ICAL (HIGH LEVEL) (MG/L) | COLI-FORM, FECAL, 0.45 UM-MF (COLS./100 ML) | STREP-TOCOCCHI FECAL, (COLS. PER 100 ML) |
|-----------|------|---|---------------------------------|--|----------------------------|-------------------|---------------------------|---|--|---|--|
| OCT 1992 | | | | | | | | | | | |
| 07... | 1210 | 17 | 285 | 7.7 | 25.0 | 10 | 8.2 | 100 | <10 | K800 | 700 |
| DEC 03... | 1055 | 40 | 281 | 7.4 | 23.0 | 74 | 5.6 | 66 | 28 | K1700 | 3400 |
| FEB 1993 | | | | | | | | | | | |
| 11... | 1050 | 26 | 283 | 8.0 | 23.5 | 3.4 | 4.8 | 57 | <10 | K160 | 300 |
| APR 13... | 1110 | 20 | 218 | 7.4 | 23.0 | 17 | 7.8 | 92 | 17 | 24000 | 43000 |
| JUN 01... | 1020 | 18 | 323 | 7.7 | 24.5 | 4.4 | 7.4 | 89 | 24 | 380 | 630 |
| SEP 13... | 1330 | 31 | 247 | 7.8 | 26.5 | 6.8 | 8.4 | 105 | <10 | 590 | 710 |

| DATE | HARD-NESS TOTAL (MG/L AS CaCO3) | HARD-NESS NONCARB WH WAT TOT FLD MG/L AS CaCO3 | CALCIUM DIS-SOLVED (MG/L AS Ca) | MAGNE-SIUM, DIS-SOLVED (MG/L AS Mg) | SODIUM, DIS-SOLVED (MG/L AS Na) | SODIUM AD-SORP-TION RATIO | POTAS-SIUM, DIS-SOLVED (MG/L AS K) | ALKA-LINITY WAT WH TOT FET FIELD MG/L AS CaCO3 | SULFIDE TOTAL (MG/L AS S) | SULFATE DIS-SOLVED (MG/L AS SO4) | CHLO-RIDE, DIS-SOLVED (MG/L AS Cl) |
|-----------|---------------------------------|--|---------------------------------|-------------------------------------|---------------------------------|---------------------------|------------------------------------|--|---------------------------|----------------------------------|------------------------------------|
| OCT 1992 | | | | | | | | | | | |
| 07... | 100 | 1 | 25 | 9.6 | 15 | 0.6 | 2.7 | 100 | 0.8 | 8.1 | 16 |
| DEC 03... | -- | -- | -- | -- | -- | -- | -- | 120 | -- | -- | -- |
| FEB 1993 | | | | | | | | | | | |
| 11... | -- | -- | -- | -- | -- | -- | -- | 110 | -- | -- | -- |
| APR 13... | 110 | 0 | 26 | 12 | 15 | 0.6 | 2.9 | 100 | <0.5 | 12 | 19 |
| JUN 01... | -- | -- | -- | -- | -- | -- | -- | 120 | -- | -- | -- |
| SEP 13... | 99 | 7 | 23 | 10 | 14 | 0.6 | 2.5 | 130 | -- | 6.6 | 15 |

| DATE | FLUO-RIDE, DIS-SOLVED (MG/L AS F) | SILICA, DIS-SOLVED (MG/L AS SiO2) | SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L) | SOLIDS, DIS-SOLVED (TONS PER DAY) | RESIDUE TOTAL AT 105 DEG. C, SUS-PENDED (MG/L) | NITRO-GEN, NITRATE TOTAL (MG/L AS N) | NITRO-GEN, NITRITE TOTAL (MG/L AS N) | NITRO-GEN, NO2+NO3 TOTAL (MG/L AS N) | NITRO-GEN, AMMONIA TOTAL (MG/L AS N) | NITRO-GEN, ORGANIC TOTAL (MG/L AS N) |
|-----------|-----------------------------------|-----------------------------------|---|-----------------------------------|--|--------------------------------------|--------------------------------------|--------------------------------------|--------------------------------------|--------------------------------------|
| OCT 1992 | | | | | | | | | | |
| 07... | 0.10 | 25 | 161 | 7.41 | <1 | 0.520 | <0.010 | 0.520 | 0.030 | 0.27 |
| DEC 03... | -- | -- | -- | -- | 32 | 0.290 | 0.010 | 0.300 | 0.020 | 0.28 |
| FEB 1993 | | | | | | | | | | |
| 11... | -- | -- | -- | -- | 4 | -- | <0.010 | 0.400 | <0.010 | 0.39 |
| APR 13... | 0.10 | 28 | 175 | 9.45 | 144 | -- | <0.010 | 0.200 | <0.010 | 0.49 |
| JUN 01... | -- | -- | -- | -- | 18 | 0.590 | 0.010 | 0.600 | 0.020 | 1.2 |
| SEP 13... | 0.10 | 26 | 175 | 14.7 | 14 | 0.480 | 0.020 | 0.500 | 0.010 | 0.29 |

K = non-ideal count

WATER-QUALITY DATA, WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993

[illegible]

RIO DE BAYAMON BASIN

50047850 RIO BAYAMON NR BAYAMON, PR

LOCATION.--Lat 18°20'08", long 66°08'13", Hydrologic Unit 21010005, on left bank, at rock quarry near Highway 174, 1.3 mi (2.1 km) south of colonia Santa Rosa and 4.7 mi (7.6 km) south of Bayamón.

DRAINAGE AREA.--41.8 mi² (108.3 km²).

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--September 1964 to October 1970, June 1988 to current year.

GAGE.--Water-stage recorder and crest-stage gage. Elevation of gage is 98 ft (30 m), from topographic map.

REMARKS.--Records fair except those for estimated daily discharges, which are poor. Diversion to the Guaynabo water treatment plant, for municipal supply, made upstream from station (at Represa de San Juan). Flow is regulated by storage and release of water at Lago de Cidra (capacity 5,220 acre-ft), 10.5 mi (16.9 km) upstream. Gage-height and precipitation satellite telemetry at station.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993
DAILY MEAN VALUES

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|-------|-------|--------|--------|------|------|------|------|------|------|------|-------|-------|
| 1 | 7.3 | 5.1 | 26 | 21 | 15 | 14 | 11 | 109 | 19 | 21 | 15 | e9.3 |
| 2 | 6.8 | 3.9 | 15 | 19 | 15 | 15 | 11 | 274 | 17 | 20 | 14 | e9.4 |
| 3 | 6.8 | 15 | 13 | 19 | 16 | 15 | 10 | 127 | 17 | 23 | 14 | e9.2 |
| 4 | 6.4 | 96 | 13 | 19 | 16 | 14 | 11 | 44 | 16 | 23 | 14 | e9.2 |
| 5 | 6.4 | 28 | 13 | 27 | 16 | 13 | 11 | 52 | 16 | 20 | 14 | e9.4 |
| 6 | 7.4 | 8.1 | 11 | 30 | 15 | 13 | e11 | 63 | 15 | 22 | 14 | e70 |
| 7 | 13 | 7.5 | 11 | 91 | 15 | 13 | e11 | 120 | 15 | 59 | 13 | e30 |
| 8 | 12 | 6.0 | 11 | 63 | 15 | 14 | e50 | 39 | 28 | 31 | 13 | e16 |
| 9 | 8.8 | 6.3 | 10 | 23 | 15 | 14 | e30 | 143 | 45 | 24 | 16 | 12 |
| 10 | 14 | 5.7 | 10 | 19 | 15 | 13 | e21 | 86 | 42 | 24 | 14 | 9.6 |
| 11 | 12 | 5.1 | 9.9 | 18 | 15 | 13 | e100 | 55 | 21 | e150 | 13 | 19 |
| 12 | 6.4 | 7.0 | 10 | 18 | 15 | 13 | e170 | 37 | 18 | e60 | 12 | 10 |
| 13 | 5.5 | 25 | 9.9 | 18 | 16 | 13 | 153 | 29 | 19 | e30 | 12 | 11 |
| 14 | 5.2 | 7.3 | 29 | 17 | 16 | 13 | 89 | 302 | 22 | e25 | 13 | 9.4 |
| 15 | 5.5 | 92 | 25 | 17 | 16 | 13 | 150 | 91 | 18 | e25 | 12 | 12 |
| 16 | 5.1 | 20 | 9.1 | 17 | 17 | 16 | 71 | 46 | 18 | e21 | 197 | 16 |
| 17 | 5.3 | 15 | 10 | 16 | 19 | 15 | 19 | 35 | 16 | e19 | 28 | 11 |
| 18 | 26 | 25 | 9.8 | 16 | 17 | 14 | 13 | 32 | 18 | e18 | 11 | 81 |
| 19 | 13 | 37 | 9.7 | 16 | 16 | 13 | 11 | 30 | e131 | e17 | 9.6 | 47 |
| 20 | 6.5 | 13 | 8.6 | 16 | 18 | 13 | 121 | 28 | e118 | e16 | 10 | 96 |
| 21 | 5.6 | 11 | 8.3 | 16 | 19 | 13 | 88 | 27 | e32 | 16 | 9.8 | 24 |
| 22 | 7.7 | 50 | 10 | 26 | 16 | 13 | 53 | 27 | e24 | 27 | 10 | 11 |
| 23 | 14 | 55 | 9.7 | 41 | 15 | 15 | 19 | e151 | 23 | 105 | 16 | 14 |
| 24 | 13 | 24 | 21 | 17 | 14 | 16 | 15 | 66 | 22 | 314 | 10 | 13 |
| 25 | 5.8 | 15 | 40 | 34 | 14 | 15 | 13 | 46 | 22 | 95 | 9.8 | 11 |
| 26 | 4.8 | 11 | 611 | 18 | 14 | 14 | 12 | e75 | 21 | 108 | 9.3 | 10 |
| 27 | 4.2 | 414 | 119 | 16 | 14 | 13 | 22 | 120 | 21 | 49 | 10 | 63 |
| 28 | 3.9 | 164 | 83 | 16 | 14 | 12 | 56 | 54 | 22 | e25 | 10 | 35 |
| 29 | 3.8 | 40 | 169 | 16 | --- | 11 | 138 | 28 | 28 | e18 | 9.8 | 22 |
| 30 | 4.6 | 185 | 40 | 17 | --- | 11 | 97 | 23 | 24 | 15 | 9.5 | 16 |
| 31 | 13 | --- | 35 | 16 | --- | 11 | --- | 21 | --- | 15 | e9.3 | --- |
| TOTAL | 259.8 | 1397.0 | 1410.0 | 733 | 438 | 418 | 1587 | 2380 | 868 | 1435 | 572.1 | 715.5 |
| MEAN | 8.38 | 46.6 | 45.5 | 23.6 | 15.6 | 13.5 | 52.9 | 76.8 | 28.9 | 46.3 | 18.5 | 23.8 |
| MAX | 26 | 414 | 611 | 91 | 19 | 16 | 170 | 302 | 131 | 314 | 197 | 96 |
| MIN | 3.8 | 3.9 | 8.3 | 16 | 14 | 11 | 10 | 21 | 15 | 15 | 9.3 | 9.2 |
| AC-FT | 515 | 2770 | 2800 | 1450 | 869 | 829 | 3150 | 4720 | 1720 | 2850 | 1130 | 1420 |
| CFSM | .20 | 1.11 | 1.09 | .57 | .37 | .32 | 1.27 | 1.84 | .69 | 1.11 | .44 | .57 |
| IN. | .23 | 1.24 | 1.25 | .65 | .39 | .37 | 1.41 | 2.12 | .77 | 1.28 | .51 | .64 |

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1964 - 1993, BY WATER YEAR (WY)

| | MEAN | 35.1 | 49.9 | 49.2 | 38.7 | 22.9 | 19.7 | 24.2 | 50.7 | 21.9 | 23.4 | 43.8 | 42.6 |
|------|------|------|------|------|------|------|------|------|------|------|------|------|------|
| MAX | 129 | 174 | 263 | 159 | 75.3 | 52.9 | 72.7 | 131 | 60.8 | 46.6 | 137 | 146 | |
| (WY) | 1991 | 1970 | 1966 | 1969 | 1989 | 1990 | 1971 | 1966 | 1970 | 1970 | 1970 | 1989 | |
| MIN | 4.30 | 7.91 | 5.19 | 5.30 | 4.75 | 3.58 | 5.36 | 6.88 | 4.26 | 5.98 | 15.0 | 6.02 | |
| (WY) | 1969 | 1965 | 1968 | 1968 | 1965 | 1965 | 1965 | 1967 | 1967 | 1967 | 1991 | 1967 | |

SUMMARY STATISTICS

FOR 1992 CALENDAR YEAR

FOR 1993 WATER YEAR

WATER YEARS 1964 - 1993

| | | | |
|--------------------------|---------|---------|-------|
| ANNUAL TOTAL | 10137.8 | 12213.4 | |
| ANNUAL MEAN | 27.7 | 33.5 | 35.0 |
| HIGHEST ANNUAL MEAN | | | 59.7 |
| LOWEST ANNUAL MEAN | | | 12.1 |
| HIGHEST DAILY MEAN | 1270 | Jan 5 | 5500 |
| LOWEST DAILY MEAN | 3.8 | Oct 29 | 2.2 |
| ANNUAL SEVEN-DAY MINIMUM | 5.5 | Oct 27 | 2.4 |
| INSTANTANEOUS PEAK FLOW | | | 28000 |
| INSTANTANEOUS PEAK STAGE | | | 20.20 |
| ANNUAL RUNOFF (AC-FT) | 20110 | 24230 | 25370 |
| ANNUAL RUNOFF (CFSM) | .66 | .80 | .84 |
| ANNUAL RUNOFF (INCHES) | 9.02 | 10.87 | 11.38 |
| 10 PERCENT EXCEEDS | 40 | 87 | 62 |
| 50 PERCENT EXCEEDS | 9.7 | 16 | 13 |
| 90 PERCENT EXCEEDS | 7.3 | 9.2 | 5.0 |

e Estimated

RIO DE BAYAMON BASIN

50047990 RIO GUAYNABO NEAR BAYAMON, PR

WATER-QUALITY RECORDS

LOCATION.--Lat 18°22'32", long 66°07'59", at bridge on Highway 833, 0.2 mi (0.3 km) upstream from Río de Bayamón, and 2.3 mi (3.7 km) southeast of Bayamón plaza.

DRAINAGE AREA.--73.2 mi² (189.6 km²).

PERIOD OF RECORD.--Water years 1958, 1964, 1971-73, 1976, 1979 to current year.

WATER-QUALITY DATA, WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993

| DATE | TIME | DIS-CHARGE, INST. CUBIC FEET PER SECOND | SPE-CIFIC CON-DUCT-ANCE (US/CM) | PH WATER WHOLE FIELD (STAND-ARD UNITS) | TEMPER-ATURE WATER (DEG C) | TUR-BID-ITY (NTU) | OXYGEN, DIS-SOLVED (MG/L) | OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION) | OXYGEN DEMAND, CHEM-ICAL (HIGH LEVEL) (MG/L) | COLI-FORM, FECAL, 0.45 UM-MF (COLS./100 ML) | STREP-TOCOCCI, FECAL, (COLS. PER 100 ML) |
|----------|------|---|---------------------------------|--|----------------------------|-------------------|---------------------------|---|--|---|--|
| OCT 1992 | | | | | | | | | | | |
| 06... | 0820 | E10 | 456 | 7.0 | 31.0 | 2.8 | 4.0 | 50 | 12 | 3900 | K620 |
| DEC | | | | | | | | | | | |
| 07... | 0900 | E10 | 464 | 6.5 | 24.0 | 9 | 4.7 | 55 | 24 | 4200 | K2000 |
| FEB 1993 | | | | | | | | | | | |
| 03... | 0830 | E10 | 409 | 7.6 | 24.5 | 11 | 3.6 | 42 | 37 | 460000 | 27000 |
| APR | | | | | | | | | | | |
| 12... | 0750 | E20 | 371 | 7.1 | 24.0 | 24 | 5.2 | 60 | 12 | 49000 | 48000 |
| MAY | | | | | | | | | | | |
| 25... | 1205 | 169 | 191 | 6.7 | 26.0 | 140 | 5.9 | 71 | 57 | 60000 | 22000 |
| SEP | | | | | | | | | | | |
| 01... | 1225 | 42 | 376 | 7.5 | 28.0 | 6.7 | 9.1 | 116 | <10 | 60000 | 310 |

| DATE | HARD-NESS TOTAL (MG/L AS CaCO3) | HARD-NESS NONCARB WH WAT TOT FLD (MG/L AS CaCO3) | CALCIUM DIS-SOLVED (MG/L AS Ca) | MAGNE-SIUM, DIS-SOLVED (MG/L AS Mg) | SODIUM, DIS-SOLVED (MG/L AS Na) | SODIUM AD-SORP-TION RATIO | POTAS-SIUM, DIS-SOLVED (MG/L AS K) | ALKA-LINITY WAT WH TOT FET FIELD (MG/L AS CaCO3) | SULFIDE TOTAL (MG/L AS S) | SULFATE DIS-SOLVED (MG/L AS SO4) | CHLO-RIDE, DIS-SOLVED (MG/L AS Cl) |
|----------|---------------------------------|--|---------------------------------|-------------------------------------|---------------------------------|---------------------------|------------------------------------|--|---------------------------|----------------------------------|------------------------------------|
| OCT 1992 | | | | | | | | | | | |
| 06... | 160 | 3 | 46 | 12 | 27 | 0.9 | 3.5 | 170 | 0.6 | 15 | 35 |
| DEC | | | | | | | | | | | |
| 07... | -- | -- | -- | -- | -- | -- | -- | 180 | -- | -- | -- |
| FEB 1993 | | | | | | | | | | | |
| 03... | -- | -- | -- | -- | -- | -- | -- | 130 | -- | -- | -- |
| APR | | | | | | | | | | | |
| 12... | 140 | 6 | 38 | 10 | 23 | 0.9 | 4.0 | 130 | 0.8 | 21 | 26 |
| MAY | | | | | | | | | | | |
| 25... | -- | -- | -- | -- | -- | -- | -- | 72 | -- | -- | -- |
| SEP | | | | | | | | | | | |
| 01... | 160 | 0 | 41 | 13 | 23 | 0.8 | 2.5 | 170 | -- | 15 | 24 |

| DATE | FLUO-RIDE, DIS-SOLVED (MG/L AS F) | SILICA, DIS-SOLVED (MG/L AS SiO2) | SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L) | SOLIDS, DIS-SOLVED (TONS PER DAY) | RESIDUE TOTAL AT 105 DEG. C, SUS-PENDED (MG/L) | NITRO-GEN, NITRATE TOTAL (MG/L AS N) | NITRO-GEN, NITRITE TOTAL (MG/L AS N) | NITRO-GEN, NO2+NO3 TOTAL (MG/L AS N) | NITRO-GEN, AMMONIA TOTAL (MG/L AS N) | NITRO-GEN, ORGANIC TOTAL (MG/L AS N) |
|----------|-----------------------------------|-----------------------------------|---|-----------------------------------|--|--------------------------------------|--------------------------------------|--------------------------------------|--------------------------------------|--------------------------------------|
| OCT 1992 | | | | | | | | | | |
| 06... | 0.20 | 28 | 269 | -- | <1 | 0.400 | 0.020 | 0.420 | 0.060 | 0.34 |
| DEC | | | | | | | | | | |
| 07... | -- | -- | -- | -- | 7 | 0.270 | 0.030 | 0.30 | 3.10 | 0.80 |
| FEB 1993 | | | | | | | | | | |
| 03... | -- | -- | -- | -- | 12 | 0.930 | 0.070 | 1.0 | 0.010 | 0.69 |
| APR | | | | | | | | | | |
| 12... | 0.10 | 22 | 222 | -- | 26 | 0.460 | 0.040 | 0.500 | 0.010 | 0.49 |
| MAY | | | | | | | | | | |
| 25... | -- | -- | -- | -- | 208 | 0.540 | 0.060 | 0.600 | 0.010 | 0.69 |
| SEP | | | | | | | | | | |
| 01... | 0.20 | 27 | 248 | 28.1 | 12 | 0.240 | 0.060 | 0.300 | 0.010 | 0.39 |

E = estimate

K = non-ideal count

RIO DE BAYAMON BASIN

50047990 RIO GUAYNABO NEAR BAYAMON, PR--Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993

| DATE | NITRO- GEN, AM- MONIA + ORGANIC TOTAL (MG/L AS N) | NITRO- GEN, TOTAL (MG/L AS N) | NITRO- GEN, TOTAL (MG/L AS NO3) | PHOS- PHORUS TOTAL (MG/L AS P) | ARSENIC TOTAL (UG/L AS AS) | BARIUM, TOTAL RECOV- ERABLE (UG/L AS BA) | BORON, TOTAL RECOV- ERABLE (UG/L AS B) | CADMIUM TOTAL RECOV- ERABLE (UG/L AS CD) | CHRO- MIUM, TOTAL RECOV- ERABLE (UG/L AS CR) | COPPER, TOTAL RECOV- ERABLE (UG/L AS CU) |
|-----------|---|---|---|--|-------------------------------------|---|---|---|--|---|
| OCT 1992 | | | | | | | | | | |
| 06... | 0.40 | 0.82 | 3.6 | 0.230 | 2 | 200 | 50 | <1 | 3 | <10 |
| DEC 07... | 3.9 | 4.2 | 19 | 0.870 | -- | -- | -- | -- | -- | -- |
| FEB 1993 | | | | | | | | | | |
| 03... | 0.70 | 3.9 | 15 | 0.270 | -- | -- | -- | -- | -- | -- |
| APR 12... | 0.50 | 3.4 | 7.5 | 0.170 | 1 | <100 | 40 | <1 | <1 | 10 |
| MAY 25... | 0.70 | 1.7 | 10 | 0.170 | -- | -- | -- | -- | -- | -- |
| SEP 01... | 0.40 | 2.3 | 13 | 0.140 | -- | -- | -- | -- | -- | -- |

[illegible]

RIO DE BAYAMON BASIN

50048510 RIO DE BAYAMON AT FLOOD CHANNEL AT BAYAMON, PR

WATER-QUALITY RECORDS

LOCATION.--Lat 18°24'29", long 66°09'04", at bridge on Highway 890, 1.0 (1.6 km) downstream from bridge on Highway 2, and 3.2 mi (5.1 km) above mouth.

DRAINAGE AREA.--71.9 mi² (186.2 km²).

PERIOD OF RECORD.--Water years 1974 to current year.

REMARKS.--Prior to 1979 sampling site was 0.8 mile (1.3 km) downstream but was changed because of flood channel construction.

WATER-QUALITY DATA, WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993

| DATE | TIME | DIS-CHARGE, INST. CUBIC FEET PER SECOND | SPE-CIFIC CON-DUCT-ANCE (US/CM) | PH WATER WHOLE FIELD (STAND-ARD UNITS) | TEMPER-ATURE WATER (DEG C) | TUR-BID-ITY (NTU) | OXYGEN, DIS-SOLVED (MG/L) | OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION) | OXYGEN DEMAND, CHEM-ICAL (HIGH LEVEL) (MG/L) | COLI-FORM, FECAL, 0.45 UM-MP (COLS./100 ML) | STREP-TOCOCCI, FECAL, (COLS. PER 100 ML) |
|----------|------|---|---------------------------------|--|----------------------------|-------------------|---------------------------|---|--|---|--|
| OCT 1992 | | | | | | | | | | | |
| 06... | 1045 | 12 | 427 | 7.5 | 31.0 | 1.2 | 7.4 | 89 | 21 | 53000 | 40 |
| DEC | | | | | | | | | | | |
| 07... | 1120 | 37 | 441 | 6.6 | 26.0 | 22 | 6.0 | 73 | 13 | 1600 | 280 |
| FEB 1993 | | | | | | | | | | | |
| 03... | 1010 | 57 | 430 | 7.6 | 25.0 | 3.2 | 5.0 | 56 | 19 | 670000 | 2400 |
| APR | | | | | | | | | | | |
| 12... | 1005 | 104 | 305 | 7.1 | 25.0 | 120 | 6.6 | 90 | 14 | 54000 | 49000 |
| MAY | | | | | | | | | | | |
| 26... | 1135 | 104 | 369 | 7.0 | 26.5 | 18 | 5.9 | 79 | 15 | 330000 | 3000 |
| SEP | | | | | | | | | | | |
| 01... | 1430 | 40 | 383 | 8.0 | 30.0 | 3.7 | 6.9 | 92 | <10 | 2400 | 220 |

| DATE | HARD-NESS TOTAL (MG/L AS CaCO3) | HARD-NESS NONCARB WH WAT TOT FLD (MG/L AS CaCO3) | CALCIUM DIS-SOLVED (MG/L AS Ca) | MAGNE-SIUM, DIS-SOLVED (MG/L AS Mg) | SODIUM, DIS-SOLVED (MG/L AS Na) | SODIUM AD-SORP-TION RATIO | POTAS-SIUM, DIS-SOLVED (MG/L AS K) | ALKA-LINITY WAT WH TOT FET (MG/L AS CaCO3) | SULFIDE TOTAL (MG/L AS S) | SULFATE DIS-SOLVED (MG/L AS SO4) | CHLO-RIDE, DIS-SOLVED (MG/L AS Cl) |
|----------|---------------------------------|--|---------------------------------|-------------------------------------|---------------------------------|---------------------------|------------------------------------|--|---------------------------|----------------------------------|------------------------------------|
| OCT 1992 | | | | | | | | | | | |
| 06... | 170 | 7 | 45 | 14 | 23 | 0.8 | 2.5 | 190 | <0.5 | 17 | 31 |
| DEC | | | | | | | | | | | |
| 07... | -- | -- | -- | -- | -- | -- | -- | 180 | -- | -- | -- |
| FEB 1993 | | | | | | | | | | | |
| 03... | -- | -- | -- | -- | -- | -- | -- | 170 | -- | -- | -- |
| APR | | | | | | | | | | | |
| 12... | 110 | 6 | 30 | 9.2 | 19 | 0.8 | 3.3 | 100 | <0.5 | 16 | 21 |
| MAY | | | | | | | | | | | |
| 26... | -- | -- | -- | -- | -- | -- | -- | 140 | -- | -- | -- |
| SEP | | | | | | | | | | | |
| 01... | 150 | 1 | 39 | 12 | 21 | 0.8 | 2.4 | 160 | -- | 15 | 25 |

| DATE | FLUO-RIDE, DIS-SOLVED (MG/L AS F) | SILICA, DIS-SOLVED (MG/L AS SiO2) | SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L) | SOLIDS, DIS-SOLVED (TONS PER DAY) | RESIDUE TOTAL AT 105 DEG. C, SUS-PENDED (MG/L) | NITRO-GEN, NITRATE TOTAL (MG/L AS N) | NITRO-GEN, NITRITE TOTAL (MG/L AS N) | NITRO-GEN, NO2+NO3 TOTAL (MG/L AS N) | NITRO-GEN, AMMONIA TOTAL (MG/L AS N) | NITRO-GEN, ORGANIC TOTAL (MG/L AS N) |
|----------|-----------------------------------|-----------------------------------|---|-----------------------------------|--|--------------------------------------|--------------------------------------|--------------------------------------|--------------------------------------|--------------------------------------|
| OCT 1992 | | | | | | | | | | |
| 06... | 0.20 | 27 | 274 | 8.87 | 1 | -- | <0.010 | <0.050 | <0.010 | 0.40 |
| DEC | | | | | | | | | | |
| 07... | -- | -- | -- | -- | 12 | 0.440 | 0.160 | 0.600 | 1.40 | 0.70 |
| FEB 1993 | | | | | | | | | | |
| 03... | -- | -- | -- | -- | 5 | 0.410 | 0.090 | 0.500 | 1.00 | 1.2 |
| APR | | | | | | | | | | |
| 12... | 0.10 | 20 | 179 | 50.1 | 129 | 0.340 | 0.060 | 0.400 | 0.010 | 1.1 |
| MAY | | | | | | | | | | |
| 26... | -- | -- | -- | -- | 32 | 0.740 | 0.060 | 0.800 | 0.110 | 0.30 |
| SEP | | | | | | | | | | |
| 01... | 0.20 | 27 | 212 | 22.9 | 10 | 0.410 | 0.090 | 0.500 | 0.240 | 1.1 |

K = non-ideal count

RIO DE BAYAMON BASIN

50048510 RIO DE BAYAMON AT FLOOD CHANNEL AT BAYAMON, PR--Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993

| DATE | NITRO- GEN, AM- MONIA + ORGANIC TOTAL (MG/L AS N) | NITRO- GEN, TOTAL (MG/L AS N) | NITRO- GEN, TOTAL (MG/L AS NO3) | PHOS- PHORUS TOTAL (MG/L AS P) | ARSENIC TOTAL (UG/L AS AS) | BARIUM, TOTAL RECOV- ERABLE (UG/L AS BA) | BORON, TOTAL RECOV- ERABLE (UG/L AS B) | CADMIUM TOTAL RECOV- ERABLE (UG/L AS CD) | CHRO- MIUM, TOTAL RECOV- ERABLE (UG/L AS CR) | COPPER, TOTAL RECOV- ERABLE (UG/L AS CU) |
|-----------|---|---|---|--|-------------------------------------|---|---|---|--|---|
| OCT 1992 | | | | | | | | | | |
| 06... | 0.40 | 1.6 | 12 | 0.320 | 1 | <100 | 40 | <1 | <1 | <10 |
| DEC 07... | 2.1 | 2.7 | 9 | 0.260 | -- | -- | -- | -- | -- | -- |
| FEB 1993 | | | | | | | | | | |
| 03... | 2.2 | 2.7 | 14 | 0.440 | -- | -- | -- | -- | -- | -- |
| APR 12... | 1.1 | 2.5 | 5 | 0.130 | <1 | <100 | 40 | <1 | 2 | 20 |
| MAY 26... | 0.4 | 1.2 | 11 | 0.160 | -- | -- | -- | -- | -- | -- |
| SEP 01... | 1.3 | 1.8 | 7 | 0.370 | -- | -- | -- | -- | -- | -- |

[illegible]

RIO PUERTO NUEVO BASIN

50048770 RIO PIEDRAS AT EL SENORIAL, PR

LOCATION.--Lat 18°21'51", long 66°03'56", Hydrologic Unit 21010005, on right bank, in the Riberas of Señorial
Housing area, 0.6 mi (1.0 km) west of Highway 176 and 2.7 mi (4.3 km) southwest of Río Piedras Plaza.

DRAINAGE AREA.--7.49 mi² (19.40 km²).

WATER-DISCHARGE RECORDS

PERIOD OF RECORDS.--March 1988 to current year.

GAGE.--Water-stage recorder. Elevation of gage is 98.4 ft (30.0 m), from topographic map.

REMARKS.--Records fair except those for estimated daily discharges, which are poor. Gage-height and precipitation
satellite telemetry at station.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993
DAILY MEAN VALUES

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|-------|------|------|--------|-------|-------|-------|-------|-------|-------|--------|-------|-------|
| 1 | 15 | 54 | 23 | 16 | 7.8 | 4.3 | 7.7 | 16 | 6.5 | 7.3 | 6.3 | 8.0 |
| 2 | 14 | 20 | 14 | 18 | 7.2 | 5.5 | 7.5 | 11 | 7.0 | 31 | 6.3 | 13 |
| 3 | 14 | 143 | 17 | 17 | 7.2 | 5.1 | 7.7 | 71 | 7.1 | 22 | 6.1 | 7.6 |
| 4 | 17 | 292 | 13 | 16 | e6.8 | 5.3 | 7.1 | 22 | 6.1 | 10 | 5.4 | 6.4 |
| 5 | 15 | 40 | 8.7 | 18 | e6.2 | 5.3 | 7.6 | 13 | 6.5 | 8.7 | 5.8 | 23 |
| 6 | 13 | 21 | 8.4 | 21 | e6.4 | 5.1 | 6.6 | 15 | 4.9 | 7.8 | 6.5 | e83 |
| 7 | 14 | 13 | 7.8 | 111 | e6.2 | 4.5 | 8.3 | 49 | 5.7 | 129 | 5.9 | 12 |
| 8 | 95 | 10 | 7.7 | 24 | e6.0 | 4.2 | 30 | 24 | 28 | 20 | 5.7 | 8.8 |
| 9 | 32 | 18 | 7.7 | 16 | e6.0 | 4.8 | 7.6 | 17 | 43 | 13 | 6.7 | 6.2 |
| 10 | 89 | 14 | 8.3 | 15 | e5.6 | 4.5 | 6.5 | 21 | 11 | 11 | 5.3 | 41 |
| 11 | 25 | 11 | 9.1 | 17 | e6.6 | 4.3 | e78 | 16 | 8.2 | 359 | 5.6 | 7.6 |
| 12 | 16 | 14 | 9.2 | 20 | e7.6 | 4.1 | 12 | 11 | 7.7 | 42 | 4.8 | 5.7 |
| 13 | 13 | 21 | 11 | 16 | e6.0 | 4.3 | 57 | 9.6 | 17 | 18 | 4.4 | 21 |
| 14 | 14 | 12 | 159 | 14 | e5.0 | 3.4 | 24 | 20 | 20 | 12 | 6.2 | 6.8 |
| 15 | 13 | 24 | 68 | 14 | e4.8 | 3.1 | 7.6 | 9.1 | 10 | 11 | 6.1 | 6.9 |
| 16 | 21 | 11 | 22 | 14 | e4.6 | 25 | 6.4 | 6.4 | 8.2 | 10 | 15 | 6.0 |
| 17 | 14 | 59 | 18 | 13 | 7.9 | 5.3 | 5.7 | 6.2 | 7.4 | 6.2 | 6.3 | 51 |
| 18 | 18 | 277 | 19 | 13 | 6.2 | 6.0 | 4.4 | 5.5 | 8.8 | 5.1 | 5.5 | 27 |
| 19 | 11 | 36 | 16 | 11 | 5.2 | 5.8 | 4.4 | 5.4 | 177 | 8.1 | 5.2 | 9.4 |
| 20 | 13 | 36 | 14 | 11 | 8.0 | 4.0 | 34 | 6.1 | 62 | 5.4 | 4.8 | 5.7 |
| 21 | 13 | 27 | 16 | 11 | 6.1 | 3.2 | e90 | 8.8 | 14 | 5.2 | 6.7 | 16 |
| 22 | 23 | 67 | 21 | 69 | 5.3 | 4.7 | 17 | 7.1 | 10 | 85 | 6.0 | 7.0 |
| 23 | 14 | 32 | 23 | 23 | 5.8 | 8.9 | 6.1 | 43 | 8.6 | 110 | 5.3 | 14 |
| 24 | 26 | 29 | 68 | 12 | 5.6 | e168 | 4.7 | 36 | 8.4 | 55 | 4.9 | 6.5 |
| 25 | 14 | 24 | 65 | 41 | 5.8 | e19 | 6.5 | 14 | 6.0 | 13 | 4.9 | 6.0 |
| 26 | 10 | 21 | 240 | 11 | 5.9 | 8.4 | 4.8 | 23 | 6.2 | 133 | 4.5 | 4.9 |
| 27 | 12 | 122 | 62 | 9.8 | 4.4 | 7.9 | 4.4 | 74 | 7.0 | 19 | 4.6 | 5.6 |
| 28 | 11 | 213 | 88 | 9.6 | 4.4 | 6.1 | 27 | 57 | 7.2 | 6.6 | 5.0 | 32 |
| 29 | 10 | 41 | 143 | 14 | --- | 6.2 | e162 | 18 | 24 | 5.2 | e120 | 6.6 |
| 30 | 41 | 91 | 46 | 11 | --- | 6.3 | e65 | 11 | 14 | 5.1 | 14 | 19 |
| 31 | 29 | --- | 24 | 8.1 | --- | 7.5 | --- | 7.2 | --- | 5.6 | 14 | --- |
| TOTAL | 679 | 1793 | 1256.9 | 634.5 | 170.6 | 360.1 | 717.6 | 653.4 | 557.5 | 1179.3 | 313.8 | 473.7 |
| MEAN | 21.9 | 59.8 | 40.5 | 20.5 | 6.09 | 11.6 | 23.9 | 21.1 | 18.6 | 38.0 | 10.1 | 15.8 |
| MAX | 95 | 292 | 240 | 111 | 8.0 | 168 | 162 | 74 | 177 | 359 | 120 | 83 |
| MIN | 10 | 10 | 7.7 | 8.1 | 4.4 | 3.1 | 4.4 | 5.4 | 4.9 | 5.1 | 4.4 | 4.9 |
| AC-FT | 1350 | 3560 | 2490 | 1260 | 338 | 714 | 1420 | 1300 | 1110 | 2340 | 622 | 940 |
| CFSM | 2.92 | 7.98 | 5.41 | 2.73 | .81 | 1.55 | 3.19 | 2.81 | 2.48 | 5.08 | 1.35 | 2.11 |
| IN. | 3.37 | 8.91 | 6.24 | 3.15 | .85 | 1.79 | 3.56 | 3.25 | 2.77 | 5.86 | 1.56 | 2.35 |

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1988 - 1993, BY WATER YEAR (WY)

| | MEAN | 29.3 | 25.2 | 18.0 | 17.1 | 13.3 | 12.2 | 15.5 | 20.9 | 14.8 | 19.6 | 26.1 | 25.5 |
|------|------|------|------|------|------|------|------|------|------|------|------|------|------|
| MAX | 57.3 | 59.8 | 40.5 | 24.4 | 23.6 | 19.5 | 23.9 | 47.2 | 24.8 | 38.0 | 66.9 | 59.5 | |
| (WY) | 1991 | 1993 | 1993 | 1992 | 1991 | 1990 | 1993 | 1992 | 1989 | 1993 | 1992 | 1989 | |
| MIN | 8.48 | 7.51 | 8.69 | 12.1 | 6.09 | 7.68 | 10.4 | 9.09 | 8.74 | 7.43 | 6.60 | 6.90 | |
| (WY) | 1992 | 1991 | 1992 | 1989 | 1993 | 1992 | 1991 | 1989 | 1990 | 1990 | 1990 | 1991 | |

SUMMARY STATISTICS

FOR 1992 CALENDAR YEAR

FOR 1993 WATER YEAR

WATER YEARS 1988 - 1993

| | | | |
|--------------------------|---------|--------|-------|
| ANNUAL TOTAL | 10350.3 | 8789.4 | |
| ANNUAL MEAN | 28.3 | 24.1 | 19.7 |
| HIGHEST ANNUAL MEAN | | | 24.1 |
| LOWEST ANNUAL MEAN | | | 15.7 |
| HIGHEST DAILY MEAN | 621 | 359 | 621 |
| LOWEST DAILY MEAN | 1.6 | 3.1 | 1.6 |
| ANNUAL SEVEN-DAY MINIMUM | 3.1 | 4.1 | 2.7 |
| INSTANTANEOUS PEAK FLOW | | 3540 | 4680 |
| INSTANTANEOUS PEAK STAGE | | 13.45 | 16.08 |
| ANNUAL RUNOFF (AC-FT) | 20530 | 17430 | 14290 |
| ANNUAL RUNOFF (CFSM) | 3.78 | 3.22 | 2.63 |
| ANNUAL RUNOFF (INCHES) | 51.41 | 43.65 | 35.79 |
| 10 PERCENT EXCEEDS | 68 | 58 | 42 |
| 50 PERCENT EXCEEDS | 10 | 11 | 8.7 |
| 90 PERCENT EXCEEDS | 4.5 | 5.1 | 4.7 |

e Estimated

RIO PUERTO NUEVO BASIN

50048770 RIO PIEDRAS AT EL SEÑORIAL, PR--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORDS.-- Water years 1988 to current year.

PERIOD OF DAILY RECORD.--

SUSPENDED-SEDIMENT DISCHARGE: April 1988 to September 1993.

INSTRUMENTATION.-- USD-77 and automatic sediment sampler.

EXTREMES FOR PERIOD OF DAILY RECORD.--

SEDIMENT CONCENTRATION: Maximum daily mean, 24,600 mg/L Sep. 18, 1989; Minimum daily mean, 2 mg/L November 18, 1988.

SEDIMENT LOADS: Maximum daily mean, e114,000 tons (e103,000 tonnes) Sep. 18, 1989; Minimum daily mean, 0.04 ton (0.03 tonne) May 6, 1990.

EXTREMES FOR WATER YEAR 1993.--

SEDIMENT CONCENTRATION: Maximum daily mean, 6,300 mg/L Mar. 24, 1993; Minimum daily mean, 22 mg/l several days.

SEDIMENT LOADS: Maximum daily mean, e28,400 tons (e25,000 tonnes) Mar. 24, 1993; Minimum daily mean, 0.18 ton (0.16 tonne) Mar. 15, 1993.

SEDIMENT DISCHARGE, SUSPENDED (TONS/DAY), WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993

| DAY | MEAN DISCHARGE (CFS) | MEAN CONCENTRATION (MG/L) | SEDIMENT DISCHARGE (TONS/DAY) | MEAN DISCHARGE (CFS) | MEAN CONCENTRATION (MG/L) | SEDIMENT DISCHARGE (TONS/DAY) | MEAN DISCHARGE (CFS) | MEAN CONCENTRATION (MG/L) | SEDIMENT DISCHARGE (TONS/DAY) |
|---------|----------------------------|---------------------------------|-------------------------------------|----------------------------|---------------------------------|-------------------------------------|----------------------------|---------------------------------|-------------------------------------|
| OCTOBER | | | NOVEMBER | | | DECEMBER | | | |
| 1 | 15 | 122 | 5.0 | 54 | 926 | 705 | 23 | 232 | 14 |
| 2 | 14 | 109 | 4.0 | 20 | 265 | 63 | 14 | 132 | 4.9 |
| 3 | 14 | 106 | 4.0 | 143 | 3030 | 4430 | 17 | 198 | 21 |
| 4 | 17 | 189 | 16 | 292 | 6300 | 10300 | 13 | 142 | 12 |
| 5 | 15 | 137 | 5.6 | 40 | 557 | 86 | 8.7 | 67 | 1.6 |
| 6 | 13 | 114 | 3.7 | 21 | 262 | 22 | 8.4 | 66 | 1.4 |
| 7 | 14 | 114 | 4.1 | 13 | 143 | 6.7 | 7.8 | 68 | 1.4 |
| 8 | 95 | 1860 | 3110 | 10 | 120 | 3.8 | 7.7 | 68 | 1.4 |
| 9 | 32 | 405 | 43 | 18 | 293 | 25 | 7.7 | 68 | 1.4 |
| 10 | 89 | 1460 | 1150 | 14 | 159 | 7.7 | 8.3 | 68 | 1.4 |
| 11 | 25 | 293 | 24 | 11 | 101 | 3.3 | 9.1 | 66 | 1.7 |
| 12 | 16 | 143 | 6.9 | 14 | 139 | 13 | 9.2 | 73 | 1.9 |
| 13 | 13 | 102 | 3.6 | 21 | 261 | 28 | 11 | 113 | 8.8 |
| 14 | 14 | 120 | 5.1 | 12 | 107 | 3.8 | 159 | 3180 | 7170 |
| 15 | 13 | 89 | 3.5 | 24 | 350 | 146 | 68 | 998 | 445 |
| 16 | 21 | 272 | 49 | 11 | 119 | 4.0 | 22 | 222 | 13 |
| 17 | 14 | 104 | 3.8 | 59 | 2220 | 920 | 18 | 170 | 7.6 |
| 18 | 18 | 237 | 29 | 277 | 5060 | 25000 | 19 | 206 | 15 |
| 19 | 11 | 116 | 4.0 | 36 | 523 | 66 | 16 | 174 | 8.3 |
| 20 | 13 | 112 | 4.0 | 36 | 566 | 275 | 14 | 144 | 5.6 |
| 21 | 13 | 90 | 2.9 | 27 | 366 | 88 | 16 | 166 | 8.2 |
| 22 | 23 | 305 | 46 | 67 | 971 | 239 | 21 | 251 | 17 |
| 23 | 14 | 104 | 3.5 | 32 | 394 | 39 | 23 | 281 | 21 |
| 24 | 26 | 320 | 75 | 29 | 372 | 42 | 68 | 1130 | 572 |
| 25 | 14 | 129 | 5.1 | 24 | 300 | 28 | 65 | 1030 | 352 |
| 26 | 10 | 100 | 3.5 | 21 | 263 | 19 | 240 | 4910 | 5410 |
| 27 | 12 | 100 | 3.7 | 122 | 2280 | 1600 | 62 | 927 | 203 |
| 28 | 11 | 103 | 3.8 | 213 | 4360 | 10800 | 88 | 1510 | 732 |
| 29 | 10 | 86 | 2.7 | 41 | 558 | 81 | 143 | 2910 | 4310 |
| 30 | 41 | 624 | 361 | 91 | 1580 | 845 | 46 | 621 | 98 |
| 31 | 29 | 340 | 59 | --- | --- | --- | 24 | 178 | 12 |
| TOTAL | 679 | --- | 5044.5 | 1793 | --- | 55889.3 | 1256.9 | --- | 19472.6 |

RIO PUERTO NUEVO BASIN

50048770 RIO PIEDRAS AT EL SEÑORIAL, PR--Continued

SEDIMENT DISCHARGE, SUSPENDED (TONS/DAY), WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993

| DAY | MEAN DISCHARGE (CFS) | MEAN CONCEN- TRATION (MG/L) | SEDIMENT DISCHARGE (TONS/DAY) | MEAN DISCHARGE (CFS) | MEAN CONCEN- TRATION (MG/L) | SEDIMENT DISCHARGE (TONS/DAY) | MEAN DISCHARGE (CFS) | MEAN CONCEN- TRATION (MG/L) | SEDIMENT DISCHARGE (TONS/DAY) |
|---------|----------------------------|--------------------------------------|-------------------------------------|----------------------------|--------------------------------------|-------------------------------------|----------------------------|--------------------------------------|-------------------------------------|
| JANUARY | | | FEBRUARY | | | MARCH | | | |
| 1 | 16 | 124 | 5.5 | 7.8 | 64 | 1.3 | 4.3 | 27 | .32 |
| 2 | 18 | 124 | 5.7 | 7.2 | 57 | 1.1 | 5.5 | 30 | .44 |
| 3 | 17 | 198 | 9.3 | 7.2 | 40 | .78 | 5.1 | 29 | .39 |
| 4 | 16 | 187 | 8.4 | e6.8 | 58 | e1.1 | 5.3 | 28 | .37 |
| 5 | 18 | 210 | 14 | e6.2 | 56 | e.94 | 5.3 | 26 | .37 |
| 6 | 21 | 211 | 18 | e6.4 | 54 | e.94 | 5.1 | 27 | .39 |
| 7 | 111 | 2070 | 2430 | e6.2 | 51 | e.86 | 4.5 | 26 | .34 |
| 8 | 24 | 273 | 20 | e6.0 | 50 | e.82 | 4.2 | 25 | .30 |
| 9 | 16 | 145 | 5.7 | e6.0 | 50 | e.82 | 4.8 | 23 | .29 |
| 10 | 15 | 188 | 7.3 | e5.6 | 46 | e.70 | 4.5 | 23 | .27 |
| 11 | 17 | 188 | 8.3 | e6.6 | 56 | e1.0 | 4.3 | 23 | .27 |
| 12 | 20 | 230 | 19 | e7.6 | 66 | e1.4 | 4.1 | 22 | .25 |
| 13 | 16 | 159 | 8.6 | e6.0 | 50 | e.82 | 4.3 | 22 | .28 |
| 14 | 14 | 120 | 4.1 | e5.0 | 40 | e.54 | 3.4 | 23 | .20 |
| 15 | 14 | 114 | 4.6 | e4.8 | 38 | e.50 | 3.1 | 22 | .18 |
| 16 | 14 | 114 | 4.6 | e4.6 | 36 | e.44 | 25 | 342 | 128 |
| 17 | 13 | 108 | 3.4 | 7.9 | 61 | 2.9 | 5.3 | 39 | .64 |
| 18 | 13 | 102 | 3.7 | 6.2 | 35 | .56 | 6.0 | 24 | .37 |
| 19 | 11 | 102 | 3.0 | 5.2 | 33 | .46 | 5.8 | 30 | .47 |
| 20 | 11 | 102 | 3.0 | 8.0 | 70 | 1.9 | 4.0 | 28 | .29 |
| 21 | 11 | 96 | 2.7 | 6.1 | 36 | .64 | 3.2 | 24 | .21 |
| 22 | 69 | 1140 | 495 | 5.3 | 34 | .48 | 4.7 | 23 | .30 |
| 23 | 23 | 292 | 26 | 5.8 | 33 | .50 | 8.9 | 92 | 5.8 |
| 24 | 12 | 162 | 6.5 | 5.6 | 31 | .45 | e168 | 6300 | e28400 |
| 25 | 41 | 679 | 349 | 5.8 | 30 | .49 | e19 | 301 | e560 |
| 26 | 11 | 92 | 2.6 | 5.9 | 33 | .55 | 8.4 | 82 | 2.0 |
| 27 | 9.8 | 77 | 2.1 | 4.4 | 34 | .40 | 7.9 | 41 | .84 |
| 28 | 9.6 | 75 | 1.9 | 4.4 | 34 | .40 | 6.1 | 38 | .65 |
| 29 | 14 | 122 | 6.5 | --- | --- | --- | 6.2 | 37 | .66 |
| 30 | 11 | 88 | 2.7 | --- | --- | --- | 6.3 | 37 | .66 |
| 31 | 8.1 | 64 | 1.3 | --- | --- | --- | 7.5 | 43 | .89 |
| TOTAL | 634.5 | --- | 3482.5 | 170.6 | --- | 23.79 | 360.1 | --- | 29106.44 |

e Estimated

RIO PUERTO NUEVO BASIN

50048770 RIO PIEDRAS AT EL SEÑORIAL, PR--Continued

SEDIMENT DISCHARGE, SUSPENDED (TONS/DAY), WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993

| DAY | MEAN DISCHARGE (CFS) | MEAN CONCENTRATION (MG/L) | SEDIMENT DISCHARGE (TONS/DAY) | MEAN DISCHARGE (CFS) | MEAN CONCENTRATION (MG/L) | SEDIMENT DISCHARGE (TONS/DAY) | MEAN DISCHARGE (CFS) | MEAN CONCENTRATION (MG/L) | SEDIMENT DISCHARGE (TONS/DAY) |
|-------|----------------------------|---------------------------------|-------------------------------------|----------------------------|---------------------------------|-------------------------------------|----------------------------|---------------------------------|-------------------------------------|
| APRIL | | | MAY | | | JUNE | | | |
| 1 | 7.7 | 52 | 1.0 | 16 | 185 | 11 | 6.5 | 51 | .83 |
| 2 | 7.5 | 53 | 1.1 | 11 | 102 | 3.8 | 7.0 | 53 | .99 |
| 3 | 7.7 | 52 | 1.1 | 71 | 1240 | 909 | 7.1 | 72 | 1.4 |
| 4 | 7.1 | 55 | .95 | 22 | 257 | 21 | 6.1 | 31 | .46 |
| 5 | 7.6 | 55 | 1.0 | 13 | 120 | 4.5 | 6.5 | 36 | .56 |
| 6 | 6.6 | 54 | .94 | 15 | 154 | 9.9 | 4.9 | 37 | .47 |
| 7 | 8.3 | 80 | 2.5 | 49 | 796 | 484 | 5.7 | 42 | .59 |
| 8 | 30 | 466 | 229 | 24 | 262 | 29 | 28 | 421 | 166 |
| 9 | 7.6 | 64 | 1.7 | 17 | 259 | 17 | 43 | 2110 | 1640 |
| 10 | 6.5 | 30 | .57 | 21 | 332 | 24 | 11 | 94 | 2.8 |
| 11 | e78 | 1780 | e3190 | 16 | 167 | 8.0 | 8.2 | 68 | 1.6 |
| 12 | 12 | 110 | 3.9 | 11 | 79 | 2.4 | 7.7 | 63 | 1.4 |
| 13 | 57 | 971 | 512 | 9.6 | 226 | 6.5 | 17 | 200 | 28 |
| 14 | 24 | 219 | 19 | 20 | 243 | 25 | 20 | 226 | 32 |
| 15 | 7.6 | 51 | 1.2 | 9.1 | 83 | 2.3 | 10 | 107 | 3.5 |
| 16 | 6.4 | 36 | .69 | 6.4 | 47 | .80 | 8.2 | 64 | 1.5 |
| 17 | 5.7 | 26 | .39 | 6.2 | 45 | .79 | 7.4 | 61 | 1.3 |
| 18 | 4.4 | 23 | .25 | 5.5 | 48 | .74 | 8.8 | 95 | 5.0 |
| 19 | 4.4 | 22 | .25 | 5.4 | 48 | .74 | 177 | 2820 | 2180 |
| 20 | 34 | 512 | 170 | 6.1 | 44 | .72 | 62 | 590 | 155 |
| 21 | e90 | 2100 | e3640 | 8.8 | 97 | 6.9 | 14 | 142 | 6.2 |
| 22 | 17 | 210 | 13 | 7.1 | 70 | 1.6 | 10 | 82 | 2.1 |
| 23 | 6.1 | 55 | 1.0 | 43 | 730 | 483 | 8.6 | 72 | 1.6 |
| 24 | 4.7 | 34 | .41 | 36 | 526 | 134 | 8.4 | 74 | 1.7 |
| 25 | 6.5 | 65 | 4.8 | 14 | 146 | 6.6 | 6.0 | 59 | 1.2 |
| 26 | 4.8 | 29 | .38 | 23 | 293 | 46 | 6.2 | 44 | .72 |
| 27 | 4.4 | 23 | .26 | 74 | 1280 | 598 | 7.0 | 44 | .75 |
| 28 | 27 | 401 | 146 | 57 | 970 | 499 | 7.2 | 46 | .88 |
| 29 | e162 | 3590 | e9970 | 18 | 191 | 11 | 24 | 373 | 114 |
| 30 | e65 | 1020 | e363 | 11 | 116 | 4.3 | 14 | 152 | 6.5 |
| 31 | --- | --- | --- | 7.2 | 60 | 1.2 | --- | --- | --- |
| TOTAL | 717.6 | --- | 18276.39 | 653.4 | --- | 3352.79 | 557.5 | --- | 4359.05 |

e Estimated

RIO PUERTO NUEVO BASIN

50048770 RIO PIEDRAS AT EL SEÑORIAL, PR--Continued

SEDIMENT DISCHARGE, SUSPENDED (TONS/DAY), WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993

| DAY | MEAN DISCHARGE (CFS) | MEAN CONCENTRATION (MG/L) | SEDIMENT DISCHARGE (TONS/DAY) | MEAN DISCHARGE (CFS) | MEAN CONCENTRATION (MG/L) | SEDIMENT DISCHARGE (TONS/DAY) | MEAN DISCHARGE (CFS) | MEAN CONCENTRATION (MG/L) | SEDIMENT DISCHARGE (TONS/DAY) |
|-------|----------------------------|---------------------------------|-------------------------------------|----------------------------|---------------------------------|-------------------------------------|----------------------------|---------------------------------|-------------------------------------|
| JULY | | | AUGUST | | | SEPTEMBER | | | |
| 1 | 7.3 | 66 | 1.3 | 6.3 | 36 | .58 | 8.0 | 66 | 1.4 |
| 2 | 31 | 453 | 123 | 6.3 | 64 | 1.3 | 13 | 143 | 12 |
| 3 | 22 | 276 | 36 | 6.1 | 40 | .72 | 7.6 | 66 | 1.4 |
| 4 | 10 | 106 | 3.5 | 5.4 | 42 | .59 | 6.4 | 56 | 1.0 |
| 5 | 8.7 | 88 | 2.5 | 5.8 | 42 | .59 | 23 | 323 | 85 |
| 6 | 7.8 | 58 | 1.0 | 6.5 | 69 | 1.5 | e83 | 673 | e819 |
| 7 | 129 | 2560 | 5760 | 5.9 | 54 | 1.0 | 12 | 123 | 5.4 |
| 8 | 20 | 217 | 13 | 5.7 | 46 | .70 | 8.8 | 92 | 3.7 |
| 9 | 13 | 151 | 6.3 | 6.7 | 66 | 1.6 | 6.2 | 56 | 1.0 |
| 10 | 11 | 124 | 4.6 | 5.3 | 58 | .95 | 41 | 702 | 518 |
| 11 | 359 | 7590 | 16900 | 5.6 | 37 | .58 | 7.6 | 65 | 1.5 |
| 12 | 42 | 529 | 83 | 4.8 | 36 | .43 | 5.7 | 48 | .72 |
| 13 | 18 | 218 | 11 | 4.4 | 34 | .40 | 21 | 329 | 85 |
| 14 | 12 | 133 | 5.1 | 6.2 | 66 | 1.6 | 6.8 | 46 | .84 |
| 15 | 11 | 116 | 4.1 | 6.1 | 55 | 1.0 | 6.9 | 59 | 1.2 |
| 16 | 10 | 112 | 3.6 | 15 | 183 | 15 | 6.0 | 54 | 1.0 |
| 17 | 6.2 | 53 | .92 | 6.3 | 51 | .85 | 51 | 969 | 948 |
| 18 | 5.1 | 42 | .59 | 5.5 | 44 | .64 | 27 | 354 | 77 |
| 19 | 8.1 | 77 | 2.9 | 5.2 | 41 | .55 | 9.4 | 87 | 3.1 |
| 20 | 5.4 | 41 | .55 | 4.8 | 39 | .50 | 5.7 | 37 | .61 |
| 21 | 5.2 | 43 | .75 | 6.7 | 69 | 1.2 | 16 | 193 | 47 |
| 22 | 85 | 1660 | 1950 | 6.0 | 42 | .59 | 7.0 | 54 | .94 |
| 23 | 110 | 1810 | 1090 | 5.3 | 42 | .59 | 14 | 173 | 24 |
| 24 | 55 | 833 | 270 | 4.9 | 37 | .46 | 6.5 | 77 | 1.5 |
| 25 | 13 | 133 | 6.1 | 4.9 | 39 | .50 | 6.0 | 41 | .62 |
| 26 | 133 | 2570 | 2960 | 4.5 | 37 | .47 | 4.9 | 46 | .73 |
| 27 | 19 | 206 | 16 | 4.6 | 36 | .43 | 5.6 | 34 | .46 |
| 28 | 6.6 | 53 | .95 | 5.0 | 49 | .90 | 32 | 482 | 143 |
| 29 | 5.2 | 40 | .54 | e120 | 1610 | e2470 | 6.6 | 60 | 1.3 |
| 30 | 5.1 | 39 | .50 | 14 | 146 | 6.6 | 19 | 273 | 68 |
| 31 | 5.6 | 39 | .62 | 14 | 170 | 22 | --- | --- | --- |
| TOTAL | 1179.3 | --- | 29258.42 | 313.8 | --- | 2534.82 | 473.7 | --- | 2854.42 |
| YEAR | 8789.4 | | 173655.02 | | | | | | |

e Estimated

RIO PUERTO NUEVO BASIN

50048770 RIO PIEDRAS AT EL SENORIAL, PR--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993

PARTICLE-SIZE DISTRIBUTION OF SUSPENDED SEDIMENT

| DATE | TIME | DIS- CHARGE, INST. CUBIC FEET PER SECOND | SEDI- MENT, SUS- PENDE (MG/L) | SEDI- MENT, DIS- CHARGE, SUS- PENDE (T/DAY) | SED. SUSP. FALL DIAM. PERCENT FINER THAN .002 MM | SED. SUSP. FALL DIAM. PERCENT FINER THAN .004 MM | SED. SUSP. FALL DIAM. PERCENT FINER THAN .008 MM |
|----------|------|--|---|---|---|---|---|
| APR 1993 | | | | | | | |
| 20... | 1345 | 833 | 3480 | 8640 | 38 | 45 | 58 |
| JUN | | | | | | | |
| 19... | 0958 | 366 | 26200 | 25800 | 27 | 38 | 44 |

| DATE | SED. SUSP. FALL DIAM. PERCENT FINER THAN .016 MM | SED. SUSP. FALL DIAM. PERCENT FINER THAN .031 MM | SED. SUSP. SIEVE DIAM. PERCENT FINER THAN .062 MM | SED. SUSP. SIEVE DIAM. PERCENT FINER THAN .125 MM | SED. SUSP. SIEVE DIAM. PERCENT FINER THAN .250 MM | SED. SUSP. SIEVE DIAM. PERCENT FINER THAN .500 MM | SED. SUSP. SIEVE DIAM. PERCENT FINER THAN 1.00 MM |
|----------|---|---|--|--|--|--|--|
| APR 1993 | | | | | | | |
| 20... | 73 | -- | 96 | 98 | 99.3 | 99.9 | 100 |
| JUN | | | | | | | |
| 19... | 58 | 71 | 84 | 91 | 96 | 99 | 100 |

RIO PUERTO NUEVO BASIN

50048770 RIO PIEDRAS AT EL SEÑORIAL, PR--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993

SILT AND CLAY PERCENT OF SUSPENDED SEDIMENT

| DATE | TIME | STREAM- FLOW, INSTAN- TANEOUS (CFS) | SEDI- MENT, SUS- PENDEED (MG/L) | SEDI- MENT, DIS- CHARGE, SUS- PENDEED (T/DAY) | SED. SUSP. SIEVE DIAM. PERCENT FINER THAN .062 MM |
|----------|------|---|---|---|--|
| MAY 1993 | | | | | |
| 10... | 1130 | 12 | 149 | 4.8 | 99 |
| JUN | | | | | |
| 19... | 0858 | 188 | 7240 | 3670 | 69 |
| 19... | 2120 | 205 | 4810 | 2660 | 981 |

RIO PUERTO NUEVO BASIN

50048800 RIO PIEDRAS NEAR RIO PIEDRAS, PR

WATER-QUALITY RECORDS

LOCATION.--Lat 18°22'15", long 66°03'40", at bridge on Winston Churchill Avenue in the El Señorial Housing area, 0.5 mi (0.8 km) west of Highway 176, and 2.5 mi (4.0 km) southwest of Río Piedras plaza.

DRAINAGE AREA.--8.17 mi² (20.9 km²).

PERIOD OF RECORD.--Water years 1972 to current year.

WATER QUALITY DATA, WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993

| DATE | TIME | DIS-CHARGE, INST. CUBIC FEET PER SECOND | SPE-CIFIC CON-DUCT-ANCE (US/CM) | PH WATER WHOLE FIELD (STAND-ARD UNITS) | TEMPER-ATURE WATER (DEG C) | TUR-BID-ITY (NTU) | OXYGEN, DIS-SOLVED (MG/L) | OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION) | OXYGEN DEMAND, CHEM-ICAL (HIGH LEVEL) (MG/L) | COLI-FORM, FECAL, 0.45 UM-MF (COLS./100 ML) | STREP-TOCOCCI, FECAL, (COLS. PER 100 ML) |
|-----------|------|---|---------------------------------|--|----------------------------|-------------------|---------------------------|---|--|---|--|
| OCT 1992 | | | | | | | | | | | |
| 01... | 0915 | 8.0 | 376 | 7.8 | 25.5 | 26 | 7.3 | 88 | <10 | 230000 | K12700 |
| DEC 15... | 0930 | 21 | 275 | 7.2 | 24.0 | 2.7 | 6.3 | 79 | <10 | K8000 | 13000 |
| FEB 1993 | | | | | | | | | | | |
| 11... | 0900 | 5.7 | 460 | 7.8 | 21.6 | 94 | 7.3 | 87 | <10 | 600000 | 7400 |
| APR 07... | 1335 | 4.7 | 410 | 7.8 | 30.5 | 1.8 | 10.9 | 143 | <10 | K10000 | K1200 |
| JUN 01... | 1145 | 6.1 | 440 | 7.9 | 31.0 | 5.1 | 7.8 | 100 | 21 | 300000 | 120000 |
| AUG 04... | 1350 | 6.3 | 414 | 7.7 | 31.0 | 0.80 | 9.0 | 120 | 12 | 14000 | 3600 |

| DATE | HARD-NESS TOTAL (MG/L AS CaCO3) | HARD-NESS NONCARB WH WAT TOT FLD MG/L AS CaCO3 | CALCIUM DIS-SOLVED (MG/L AS Ca) | MAGNE-SIUM, DIS-SOLVED (MG/L AS Mg) | SODIUM, DIS-SOLVED (MG/L AS Na) | SODIUM AD-SORP-TION RATIO | POTAS-SIUM, DIS-SOLVED (MG/L AS K) | ALKA-LINITY WAT WH TOT FLD MG/L AS CaCO3 | SULFIDE TOTAL (MG/L AS S) | SULFATE DIS-SOLVED (MG/L AS SO4) | CHLO-RIDE, DIS-SOLVED (MG/L AS Cl) |
|-----------|---------------------------------|--|---------------------------------|-------------------------------------|---------------------------------|---------------------------|------------------------------------|--|---------------------------|----------------------------------|------------------------------------|
| OCT 1992 | | | | | | | | | | | |
| 01... | 130 | 0 | 38 | 9.6 | 20 | 0.8 | 3.1 | 115 | <0.5 | 28 | 28 |
| DEC 15... | -- | -- | -- | -- | -- | -- | -- | 120 | -- | -- | -- |
| FEB 1993 | | | | | | | | | | | |
| 11... | -- | -- | -- | -- | -- | -- | -- | 150 | -- | -- | -- |
| APR 07... | 160 | 4 | 42 | 13 | 29 | 1 | 2.9 | 160 | <0.5 | 16 | 33 |
| JUN 01... | -- | -- | -- | -- | -- | -- | -- | 180 | -- | -- | -- |
| AUG 04... | 160 | 7 | 41 | 13 | 29 | 1 | 2.6 | 100 | -- | 21 | 29 |

| DATE | FLUO-RIDE, DIS-SOLVED (MG/L AS F) | SILICA, DIS-SOLVED (MG/L AS SiO2) | SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L) | SOLIDS, DIS-SOLVED (TONS PER DAY) | RESIDUE TOTAL AT 105 DEG. C, SUS-PENDED (MG/L) | NITRO-GEN, NITRATE TOTAL (MG/L AS N) | NITRO-GEN, NITRITE TOTAL (MG/L AS N) | NITRO-GEN, NO2+NO3 TOTAL (MG/L AS N) | NITRO-GEN, AMMONIA TOTAL (MG/L AS N) | NITRO-GEN, ORGANIC TOTAL (MG/L AS N) |
|-----------|-----------------------------------|-----------------------------------|---|-----------------------------------|--|--------------------------------------|--------------------------------------|--------------------------------------|--------------------------------------|--------------------------------------|
| OCT 1992 | | | | | | | | | | |
| 01... | 0.20 | 24 | 220 | 4.72 | 7 | 0.680 | 0.040 | 0.720 | 0.220 | 0.38 |
| DEC 15... | -- | -- | -- | -- | 1 | 0.780 | 0.020 | 0.800 | 0.030 | 0.17 |
| FEB 1993 | | | | | | | | | | |
| 11... | -- | -- | -- | -- | -- | 0.600 | 0.090 | 0.690 | 0.300 | 0.50 |
| APR 07... | 0.20 | 31 | 263 | 3.32 | 9 | 0.790 | 0.060 | 0.850 | 0.180 | 0.42 |
| JUN 01... | -- | -- | -- | -- | 38 | 0.680 | 0.070 | 0.750 | 0.590 | 0.41 |
| AUG 04... | 0.20 | 32 | 228 | 3.87 | 2 | 0.570 | 0.070 | 0.640 | 0.290 | 0.51 |

K = non-ideal count

RIO PUERTO NUEVO BASIN

50048800 RIO PIEDRAS NEAR RIO PIEDRAS, PR--Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993

| DATE | NITRO- GEN, AM- MONIA + ORGANIC TOTAL (MG/L AS N) | NITRO- GEN, TOTAL (MG/L AS N) | NITRO- GEN, TOTAL (MG/L AS NO3) | PHOS- PHORUS TOTAL (MG/L AS P) | ARSENIC TOTAL (UG/L AS AS) | BARIUM, TOTAL RECOV- ERABLE (UG/L AS BA) | BORON, TOTAL RECOV- ERABLE (UG/L AS B) | CADMIUM TOTAL RECOV- ERABLE (UG/L AS CD) | CHRO- MIUM, TOTAL RECOV- ERABLE (UG/L AS CR) | COPPER, TOTAL RECOV- ERABLE (UG/L AS CU) |
|-----------|---|---|---|--|-------------------------------------|---|---|---|--|---|
| OCT 1992 | | | | | | | | | | |
| 01... | 0.60 | 1.3 | 5.8 | 0.170 | <1 | 200 | 40 | <1 | <1 | <10 |
| DEC 15... | 0.40 | 4.1 | 18 | 0.810 | -- | -- | -- | -- | -- | -- |
| FEB 1993 | | | | | | | | | | |
| 11... | 0.80 | 1.5 | 6.6 | 0.290 | -- | -- | -- | -- | -- | -- |
| APR 07... | 0.60 | 1.5 | 6.4 | 0.320 | 2 | 200 | 50 | <1 | <1 | <10 |
| JUN 01... | 1.0 | 1.7 | 7.7 | 0.280 | -- | -- | -- | -- | -- | -- |
| AUG 04... | 0.80 | 1.4 | 6.4 | 0.260 | -- | -- | -- | -- | -- | -- |

| DATE | IRON, TOTAL RECOV- ERABLE (UG/L AS FE) | LEAD, TOTAL RECOV- ERABLE (UG/L AS PB) | MANGA- NESE, TOTAL RECOV- ERABLE (UG/L AS MN) | MERCURY TOTAL RECOV- ERABLE (UG/L AS HG) | SELE- NIUM, TOTAL (UG/L AS SE) | SILVER, TOTAL RECOV- ERABLE (UG/L AS AG) | ZINC, TOTAL RECOV- ERABLE (UG/L AS ZN) | CYANIDE TOTAL (MG/L AS CN) | PHENOLS TOTAL (UG/L) | METHY- LENE BLUE ACTIVE SUB- STANCE (MG/L) |
|-----------|---|---|---|---|--|---|---|-------------------------------------|----------------------------|--|
| OCT 1992 | | | | | | | | | | |
| 01... | 1400 | <1 | 150 | <0.10 | <1 | <1 | 20 | <0.010 | <1 | 0.05 |
| DEC 15... | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| FEB 1993 | | | | | | | | | | |
| 11... | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| APR 07... | 150 | <1 | 110 | <0.10 | <1 | <1 | 10 | <0.010 | <1 | 0.19 |
| JUN 01... | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| AUG 04... | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |

PESTICIDE ANALYSES

| DATE | TIME | PCB, TOTAL (UG/L) | ALDRIN, TOTAL (UG/L) | CHLOR- DANE, TOTAL (UG/L) | DDD, TOTAL (UG/L) | DDE, TOTAL (UG/L) | DDT, TOTAL (UG/L) | DI- AZINON, TOTAL (UG/L) | DI- ELDRIN, TOTAL (UG/L) | ENDO- SULFAN, TOTAL (UG/L) |
|----------|------|-------------------------|----------------------------|------------------------------------|-------------------------|-------------------------|-------------------------|-----------------------------------|-----------------------------------|-------------------------------------|
| JUN 1993 | | | | | | | | | | |
| 08... | 1115 | <0.1 | <0.010 | <0.1 | <0.010 | <0.010 | <0.010 | 0.06 | <0.010 | <0.010 |

| DATE | ENDRIN WATER UNFLTRD REC (UG/L) | ETHION, TOTAL (UG/L) | HEPTA- CHLOR, TOTAL (UG/L) | HEPTA- CHLOR EPOXIDE TOTAL (UG/L) | LINDANE TOTAL (UG/L) | MALA- THION, TOTAL (UG/L) | METH- OXY- CHLOR, TOTAL (UG/L) | METHYL PARA- THION, TOTAL (UG/L) | MIREX, TOTAL (UG/L) |
|----------|---|----------------------------|-------------------------------------|---|----------------------------|------------------------------------|--|--|---------------------------|
| JUN 1993 | | | | | | | | | |
| 08... | <0.010 | <0.01 | <0.010 | <0.010 | <0.010 | 0.05 | <0.01 | <0.01 | <0.01 |

| DATE | PARA- THION, TOTAL (UG/L) | NAPH- THA- LENES, POLY- CHLOR. TOTAL (UG/L) | PER- THANE TOTAL (UG/L) | TOX- APHERE, TOTAL (UG/L) | TOTAL TRI- THION (UG/L) | 2,4-D, TOTAL (UG/L) | 2,4,5-T TOTAL (UG/L) | 2,4-DP TOTAL (UG/L) | SILVEX, TOTAL (UG/L) |
|----------|------------------------------------|---|----------------------------------|------------------------------------|----------------------------------|---------------------------|----------------------------|---------------------------|----------------------------|
| JUN 1993 | | | | | | | | | |
| 08... | <0.01 | <0.10 | <0.1 | <1 | <0.01 | 0.04 | <0.01 | <0.01 | <0.01 |

RIO PUERTO NUEVO BASIN

50049000 RIO PIEDRAS AT RIO PIEDRAS, PR

LOCATION.--Lat 18°23'48", long 66°03'24", Hydrologic Unit 21010005, on left bank, at bridge on Highway 1, 0.3 mi (0.5 km) southwest of the plaza in Río Piedras, and 0.4 mi (0.6 km) downstream from diversion for water supply.

DRAINAGE AREA.--12.5 mi² (32.4 km²).

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--October 1958 (maximum discharge measurement only), 1959-64 (annual low-flow measurements only), July 1971 to September 1982, October 1987 to current year.

GAGE.--Water-stage recorder and crest-stage gage. Elevation of gage is 50 ft (15 m), from topographic map.

REMARKS.--Records fair. Low flow affected by diversions for water supply. Gage-height and precipitation satellite telemetry at station.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993
DAILY MEAN VALUES

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|-------|-------|------|------|------|-------|-------|--------|-------|-------|--------|-------|-------|
| 1 | 8.2 | 41 | 27 | 26 | 12 | 12 | 12 | 14 | 8.3 | 7.6 | 11 | 7.2 |
| 2 | 9.9 | 19 | 19 | 32 | 13 | 11 | 12 | 12 | 8.7 | 23 | 11 | 8.9 |
| 3 | 8.2 | 187 | 24 | 32 | 16 | 11 | 13 | 46 | 9.1 | 23 | 11 | 8.6 |
| 4 | 15 | 866 | 27 | 30 | 12 | 12 | 12 | 15 | 8.7 | 9.4 | 10 | 8.5 |
| 5 | 7.0 | 58 | 16 | 41 | 12 | 12 | 12 | 11 | 9.1 | 9.5 | 9.8 | 18 |
| 6 | 5.8 | 40 | 15 | 44 | 11 | 13 | 11 | 14 | 8.5 | 9.9 | 9.9 | 184 |
| 7 | 6.7 | 30 | 13 | 140 | 12 | 12 | 16 | 71 | 8.4 | 158 | 9.8 | 16 |
| 8 | 68 | 28 | 12 | 35 | 13 | 11 | 47 | 21 | 22 | 17 | 9.7 | 14 |
| 9 | 14 | 35 | 10 | 28 | 12 | 11 | 14 | 18 | 37 | 12 | 10 | 9.2 |
| 10 | 47 | 29 | 10 | 28 | 13 | 12 | 12 | 18 | 19 | 12 | 9.3 | 42 |
| 11 | 12 | 21 | 10 | 29 | 11 | 11 | 95 | 13 | 12 | 474 | 9.3 | 11 |
| 12 | 8.1 | 49 | 10 | 38 | 15 | 11 | 17 | 11 | 12 | 37 | 9.4 | 9.6 |
| 13 | 6.8 | 39 | 12 | 30 | 8.8 | 11 | 44 | 10 | 31 | 18 | 8.9 | 21 |
| 14 | 13 | 21 | 423 | 32 | 8.2 | 10 | 36 | 19 | 19 | 17 | 10 | 11 |
| 15 | 8.1 | 40 | 139 | 18 | 10 | 9.9 | 14 | 11 | 38 | 21 | 11 | 11 |
| 16 | 35 | 20 | 23 | 15 | 11 | 47 | 12 | 9.3 | 11 | 15 | 17 | 11 |
| 17 | 9.4 | 75 | 21 | 15 | 21 | 14 | 20 | 9.2 | 10 | 13 | 8.5 | 61 |
| 18 | 26 | 443 | 22 | 16 | 11 | 12 | 11 | 8.6 | 10 | 12 | 8.4 | 21 |
| 19 | 7.0 | 70 | 21 | 16 | 12 | 12 | 10 | 8.6 | 206 | 14 | 8.3 | 21 |
| 20 | 8.6 | 139 | 16 | 15 | 22 | 11 | 41 | 9.1 | 53 | 11 | 8.1 | 9.5 |
| 21 | 8.5 | 60 | 19 | 17 | 13 | 11 | 132 | 10 | 14 | 11 | 8.7 | 20 |
| 22 | 18 | 137 | 26 | 93 | 11 | 13 | 18 | 9.3 | 14 | 123 | 9.0 | 10 |
| 23 | 32 | 53 | 27 | 22 | 12 | 20 | 10 | 87 | 11 | 126 | 8.1 | 17 |
| 24 | 22 | 47 | 106 | 18 | 11 | 226 | 9.3 | 41 | 13 | 54 | 7.9 | 11 |
| 25 | 11 | 39 | 61 | 35 | 13 | 25 | 9.8 | 18 | 10 | 15 | 7.9 | 9.0 |
| 26 | 8.3 | 33 | 313 | 17 | 12 | 14 | 9.6 | 28 | 9.6 | 118 | 7.6 | 9.8 |
| 27 | 26 | 167 | 70 | 17 | 11 | 14 | 8.9 | 146 | 9.8 | 24 | 8.1 | 13 |
| 28 | 8.1 | 369 | 104 | 15 | 11 | 13 | 35 | 40 | 9.7 | 12 | 8.5 | 21 |
| 29 | 8.1 | 90 | 169 | 17 | --- | 13 | 361 | 13 | 20 | 11 | 65 | 9.7 |
| 30 | 115 | 86 | 51 | 13 | --- | 13 | 105 | 10 | 9.5 | 12 | 12 | 15 |
| 31 | 20 | --- | 30 | 12 | --- | 13 | --- | 8.6 | --- | 11 | 9.5 | --- |
| TOTAL | 600.8 | 3331 | 1846 | 936 | 350.0 | 640.9 | 1159.6 | 759.7 | 661.4 | 1430.4 | 352.7 | 639.0 |
| MEAN | 19.4 | 111 | 59.5 | 30.2 | 12.5 | 20.7 | 38.7 | 24.5 | 22.0 | 46.1 | 11.4 | 21.3 |
| MAX | 115 | 866 | 423 | 140 | 22 | 226 | 361 | 146 | 206 | 474 | 65 | 184 |
| MIN | 5.8 | 19 | 10 | 12 | 8.2 | 9.9 | 8.9 | 8.6 | 8.3 | 7.6 | 7.6 | 7.2 |
| AC-FT | 1190 | 6610 | 3660 | 1860 | 694 | 1270 | 2300 | 1510 | 1310 | 2840 | 700 | 1270 |
| CFSM | 1.55 | 8.88 | 4.76 | 2.42 | 1.00 | 1.65 | 3.09 | 1.96 | 1.76 | 3.69 | .91 | 1.70 |
| IN. | 1.79 | 9.91 | 5.49 | 2.79 | 1.04 | 1.91 | 3.45 | 2.26 | 1.97 | 4.26 | 1.05 | 1.90 |

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1971 - 1993, BY WATER YEAR (WY)

| | MEAN | 48.2 | 39.9 | 36.6 | 18.2 | 19.8 | 16.4 | 24.7 | 32.1 | 19.1 | 22.1 | 36.8 | 37.1 |
|------|------|------|------|------|------|------|------|------|------|------|------|------|------|
| MAX | 122 | 133 | 133 | 34.7 | 98.9 | 42.5 | 64.0 | 121 | 59.7 | 55.6 | 11.4 | 112 | 112 |
| (WY) | 1977 | 1978 | 1976 | 1992 | 1979 | 1972 | 1978 | 1979 | 1989 | 1989 | 1979 | 1989 | 1989 |
| MIN | 10.5 | 8.16 | 9.88 | 4.03 | 4.40 | 2.67 | 4.49 | 3.46 | 3.25 | 3.35 | 4.30 | 10.1 | 10.1 |
| (WY) | 1992 | 1974 | 1977 | 1973 | 1977 | 1976 | 1974 | 1975 | 1974 | 1976 | 1976 | 1976 | 1973 |

SUMMARY STATISTICS

FOR 1992 CALENDAR YEAR

FOR 1993 WATER YEAR

WATER YEARS 1971 - 1993

| | | | |
|--------------------------|---------|---------|-------|
| ANNUAL TOTAL | 14166.0 | 12707.5 | |
| ANNUAL MEAN | 38.7 | 34.8 | 29.5 |
| HIGHEST ANNUAL MEAN | | | 54.2 |
| LOWEST ANNUAL MEAN | | | 11.9 |
| HIGHEST DAILY MEAN | 866 | Nov 4 | 2030 |
| LOWEST DAILY MEAN | 4.8 | Sep 28 | .26 |
| ANNUAL SEVEN-DAY MINIMUM | 6.1 | Sep 8 | .83 |
| INSTANTANEOUS PEAK FLOW | | | 5960 |
| INSTANTANEOUS PEAK STAGE | | | 13.02 |
| ANNUAL RUNOFF (AC-FT) | 28100 | 25210 | 21350 |
| ANNUAL RUNOFF (CFSM) | 3.10 | 2.79 | 2.36 |
| ANNUAL RUNOFF (INCHES) | 42.16 | 37.82 | 32.03 |
| 10 PERCENT EXCEEDS | 97 | 69 | 53 |
| 50 PERCENT EXCEEDS | 12 | 13 | 12 |
| 90 PERCENT EXCEEDS | 6.9 | 8.7 | 3.4 |

RIO PUERTO NUEVO BASIN

50049000 RIO PIEDRAS AT RIO PIEDRAS, PR--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORDS.-- Water years 1988 to current year.

PERIOD OF DAILY RECORD.--

SUSPENDED-SEDIMENT DISCHARGE: October 1988 to September 1993.

INSTRUMENTATION.-- USD-77 and automatic sediment sampler.

EXTREMES FOR PERIOD OF DAILY RECORD.--

SEDIMENT CONCENTRATION: Maximum daily mean, 13,000 mg/L Sep. 18, 1989; Minimum daily mean, 4 mg/L June 4, 1990.

SEDIMENT LOADS: Maximum daily mean, 165,000 tons (150,200 tonnes) Sep. 18, 1989; Minimum daily mean, 0.09 ton (0.08 tonne) Sep. 24, 1991.

EXTREMES FOR WATER YEAR 1993.--

SEDIMENT CONCENTRATION: Maximum daily mean, 4,460 mg/L Nov. 04, 1992; Minimum daily mean, 9 mg/L Aug. 23, 1993.

SEDIMENT LOADS: Maximum daily mean, 21,200 tons (19,200 tonnes) Nov. 04, 1992; Minimum daily mean, 0.18 tons (0.16 tonnes) Aug. 23, 1993.

SEDIMENT DISCHARGE, SUSPENDED (TONS/DAY), WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993

| DAY | MEAN DISCHARGE (CFS) | MEAN CONCENTRATION (MG/L) | SEDIMENT DISCHARGE (TONS/DAY) | MEAN DISCHARGE (CFS) | MEAN CONCENTRATION (MG/L) | SEDIMENT DISCHARGE (TONS/DAY) | MEAN DISCHARGE (CFS) | MEAN CONCENTRATION (MG/L) | SEDIMENT DISCHARGE (TONS/DAY) |
|---------|----------------------------|---------------------------------|-------------------------------------|----------------------------|---------------------------------|-------------------------------------|----------------------------|---------------------------------|-------------------------------------|
| OCTOBER | | | NOVEMBER | | | DECEMBER | | | |
| 1 | 20 | 87 | 13 | 17 | 53 | 2.4 | 12 | 35 | 1.6 |
| 2 | 12 | 39 | 1.6 | 69 | 438 | 306 | 13 | 24 | .90 |
| 3 | 9.9 | 38 | 1.1 | 18 | 64 | 6.1 | 37 | 187 | 43 |
| 4 | 9.7 | 22 | .64 | 14 | 53 | 2.7 | 14 | 33 | 1.5 |
| 5 | 12 | 39 | 2.1 | 9.0 | 25 | .66 | 14 | 22 | .73 |
| 6 | 7.0 | 14 | .25 | 9.3 | 19 | .49 | 12 | 23 | .75 |
| 7 | 6.5 | 14 | .25 | 30 | 166 | 66 | 8.9 | 22 | .52 |
| 8 | 8.8 | 22 | .98 | 41 | 205 | 48 | 15 | 42 | 2.2 |
| 9 | 5.9 | 14 | .22 | 11 | 23 | .71 | 14 | 38 | 1.9 |
| 10 | 5.4 | 13 | .21 | 9.6 | 15 | .38 | 8.8 | 24 | .64 |
| 11 | 5.4 | 11 | .16 | 7.4 | 14 | .29 | 9.1 | 19 | .43 |
| 12 | 5.5 | 12 | .17 | 7.2 | 15 | .28 | 16 | 59 | 7.4 |
| 13 | 5.7 | 10 | .15 | 9.5 | 25 | .72 | 8.9 | 24 | .73 |
| 14 | 4.8 | 11 | .14 | 6.9 | 17 | .31 | 14 | 46 | 3.1 |
| 15 | 7.3 | 24 | 1.0 | 7.8 | 16 | .32 | 7.6 | 17 | .34 |
| 16 | 5.8 | 11 | .16 | 17 | 58 | 6.0 | 20 | 93 | 28 |
| 17 | 4.9 | 10 | .13 | 9.5 | 17 | .47 | 7.3 | 17 | .35 |
| 18 | 66 | 459 | 784 | 9.1 | 16 | .40 | 7.8 | 15 | .29 |
| 19 | 13 | 48 | 3.5 | 8.1 | 17 | .35 | 7.1 | 15 | .26 |
| 20 | 7.9 | 18 | .37 | 8.3 | 19 | .42 | 29 | 143 | 32 |
| 21 | 6.9 | 15 | .28 | 201 | 821 | 2280 | 13 | 47 | 2.0 |
| 22 | 6.5 | 16 | .33 | 76 | 535 | 425 | 13 | 51 | 2.3 |
| 23 | 8.7 | 19 | .43 | 32 | 147 | 38 | 13 | 39 | 1.7 |
| 24 | 6.9 | 14 | .28 | 43 | 232 | 78 | 9.1 | 16 | .41 |
| 25 | 6.2 | 12 | .19 | 9.9 | 26 | .75 | 8.6 | 16 | .40 |
| 26 | 9.4 | 28 | 1.6 | 12 | 34 | 1.9 | 9.6 | 17 | .46 |
| 27 | 6.5 | 13 | .20 | 15 | 58 | 6.0 | 13 | 40 | 2.4 |
| 28 | 6.2 | 13 | .20 | 8.7 | 21 | .50 | 9.6 | 21 | .51 |
| 29 | 6.2 | 13 | .20 | 8.9 | 20 | .44 | 9.7 | 22 | .58 |
| 30 | 26 | 127 | 30 | 9.9 | 20 | .50 | 23 | 95 | 21 |
| 31 | 12 | 44 | 1.4 | --- | --- | --- | 11 | 34 | 1.9 |
| TOTAL | 325.0 | --- | 845.24 | 735.1 | --- | 3274.09 | 408.1 | --- | 160.30 |

RIO PUERTO NUEVO BASIN

50049000 RIO PIEDRAS AT RIO PIEDRAS, PR--Continued

SEDIMENT DISCHARGE, SUSPENDED (TONS/DAY), WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993

| DAY | MEAN DISCHARGE (CFS) | MEAN CONCEN- TRATION (MG/L) | SEDIMENT DISCHARGE (TONS/DAY) | MEAN DISCHARGE (CFS) | MEAN CONCEN- TRATION (MG/L) | SEDIMENT DISCHARGE (TONS/DAY) | MEAN DISCHARGE (CFS) | MEAN CONCEN- TRATION (MG/L) | SEDIMENT DISCHARGE (TONS/DAY) |
|---------|----------------------------|--------------------------------------|-------------------------------------|----------------------------|--------------------------------------|-------------------------------------|----------------------------|--------------------------------------|-------------------------------------|
| JANUARY | | | FEBRUARY | | | MARCH | | | |
| 1 | 9.7 | 81 | 3.5 | 8.8 | 16 | .42 | 5.8 | 35 | .54 |
| 2 | 7.7 | 18 | .38 | 13 | 35 | 4.2 | 6.6 | 40 | .66 |
| 3 | 7.5 | 27 | .58 | 12 | 38 | 2.7 | 6.2 | 33 | .55 |
| 4 | 6.3 | 11 | .20 | 9.2 | 17 | .47 | 11 | 38 | 3.0 |
| 5 | 455 | 2080 | 7290 | 8.6 | 16 | .40 | 7.3 | 14 | .27 |
| 6 | 168 | 1260 | 1460 | 8.1 | 16 | .34 | 7.4 | 11 | .25 |
| 7 | 14 | 41 | 1.6 | 8.6 | 16 | .38 | 7.9 | 13 | .29 |
| 8 | 9.6 | 25 | .65 | 8.9 | 16 | .40 | 7.4 | 13 | .25 |
| 9 | 26 | 138 | 37 | 8.6 | 16 | .37 | 6.8 | 13 | .22 |
| 10 | 119 | 862 | 679 | 8.6 | 16 | .34 | 7.9 | 13 | .28 |
| 11 | 13 | 41 | 1.6 | 8.7 | 16 | .37 | 8.5 | 14 | .33 |
| 12 | 13 | 43 | 2.0 | 8.8 | 16 | .38 | 7.6 | 14 | .26 |
| 13 | 17 | 64 | 4.7 | 8.9 | 16 | .37 | 9.0 | 15 | .37 |
| 14 | 11 | 24 | .63 | 8.9 | 16 | .37 | 12 | 21 | .69 |
| 15 | 10 | 23 | .56 | 8.8 | 15 | .39 | 8.3 | 27 | .63 |
| 16 | 45 | 241 | 178 | 7.8 | 15 | .33 | 8.7 | 36 | .89 |
| 17 | 13 | 53 | 2.2 | 8.7 | 13 | .32 | 15 | 37 | 1.6 |
| 18 | 11 | 44 | 1.3 | 7.5 | 13 | .28 | 11 | 26 | .78 |
| 19 | 8.4 | 41 | .90 | 9.2 | 16 | .39 | 10 | 20 | .46 |
| 20 | 9.9 | 40 | .97 | 6.5 | 15 | .28 | 9.1 | 16 | .40 |
| 21 | 8.3 | 40 | .83 | 6.3 | 13 | .20 | 9.8 | 17 | .44 |
| 22 | 7.8 | 38 | .73 | 20 | 88 | 14 | 7.2 | 17 | .33 |
| 23 | 7.6 | 29 | .55 | 7.3 | 13 | .27 | 10 | 29 | .96 |
| 24 | 8.2 | 21 | .42 | 7.5 | 13 | .27 | 7.8 | 14 | .28 |
| 25 | 13 | 35 | 1.4 | 7.2 | 13 | .27 | 7.9 | 15 | .34 |
| 26 | 10 | 19 | .51 | 7.4 | 13 | .28 | 8.5 | 15 | .36 |
| 27 | 9.2 | 19 | .46 | 7.8 | 13 | .28 | 8.2 | 15 | .36 |
| 28 | 12 | 19 | .65 | 7.0 | 15 | .28 | 132 | 982 | 2540 |
| 29 | 8.8 | 17 | .36 | 7.0 | 23 | .44 | 13 | 47 | 2.2 |
| 30 | 8.6 | 16 | .38 | --- | --- | --- | 8.0 | 34 | .75 |
| 31 | 8.7 | 16 | .40 | --- | --- | --- | 9.1 | 27 | .75 |
| TOTAL | 1076.3 | --- | 9672.46 | 255.7 | --- | 29.79 | 395.0 | --- | 2559.49 |

RIO PUERTO NUEVO BASIN

50049000 RIO PIEDRAS AT RIO PIEDRAS, PR--Continued

SEDIMENT DISCHARGE, SUSPENDED (TONS/DAY), WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993

| DAY | MEAN DISCHARGE (CFS) | MEAN CONCEN- TRATION (MG/L) | SEDIMENT DISCHARGE (TONS/DAY) | MEAN DISCHARGE (CFS) | MEAN CONCEN- TRATION (MG/L) | SEDIMENT DISCHARGE (TONS/DAY) | MEAN DISCHARGE (CFS) | MEAN CONCEN- TRATION (MG/L) | SEDIMENT DISCHARGE (TONS/DAY) |
|-------|----------------------------|--------------------------------------|-------------------------------------|----------------------------|--------------------------------------|-------------------------------------|----------------------------|--------------------------------------|-------------------------------------|
| APRIL | | | MAY | | | JUNE | | | |
| 1 | 9.5 | 20 | .53 | 202 | 1030 | 2500 | 95 | 591 | 1140 |
| 2 | 8.9 | 20 | .48 | 149 | 1000 | 1370 | 23 | 92 | 7.6 |
| 3 | 9.2 | 20 | .53 | 11 | 33 | 1.2 | 15 | 34 | 1.2 |
| 4 | 10 | 20 | .55 | 6.9 | 11 | .21 | 14 | 32 | 1.2 |
| 5 | 9.6 | 18 | .45 | 5.7 | 10 | .15 | 13 | 31 | .95 |
| 6 | 10 | 17 | .41 | 76 | 604 | 1020 | 23 | 97 | 18 |
| 7 | 12 | 19 | .63 | 12 | 35 | 1.2 | 189 | 1200 | 2680 |
| 8 | 19 | 67 | 9.0 | 8.8 | 23 | .59 | 114 | 815 | 652 |
| 9 | 15 | 51 | 4.1 | 14 | 49 | 8.4 | 30 | 120 | 12 |
| 10 | 21 | 86 | 11 | 17 | 57 | 4.7 | 19 | 69 | 5.1 |
| 11 | 13 | 41 | 2.0 | 14 | 38 | 1.8 | 12 | 31 | .97 |
| 12 | 11 | 35 | 1.5 | 8.6 | 19 | .43 | 15 | 46 | 2.9 |
| 13 | 6.8 | 14 | .24 | 7.9 | 16 | .32 | 11 | 28 | .81 |
| 14 | 6.9 | 11 | .21 | 7.8 | 15 | .30 | 18 | 72 | 11 |
| 15 | 6.0 | 11 | .16 | 8.3 | 15 | .34 | 12 | 40 | 1.9 |
| 16 | 6.7 | 12 | .22 | 122 | 789 | 1570 | 9.2 | 20 | .45 |
| 17 | 7.2 | 13 | .27 | 19 | 64 | 3.7 | 7.8 | 15 | .27 |
| 18 | 13 | 47 | 4.5 | 87 | 553 | 850 | 6.9 | 13 | .22 |
| 19 | 73 | 512 | 721 | 59 | 373 | 223 | 7.6 | 16 | .32 |
| 20 | 13 | 45 | 3.7 | 24 | 86 | 7.9 | 8.1 | 19 | .42 |
| 21 | 9.4 | 29 | 1.7 | 46 | 314 | 267 | 14 | 39 | 1.9 |
| 22 | 5.7 | 10 | .14 | 15 | 48 | 2.1 | 9.9 | 19 | .49 |
| 23 | 6.6 | 10 | .18 | 167 | 1290 | 1800 | 9.7 | 19 | .48 |
| 24 | 7.5 | 10 | .21 | 127 | 922 | 980 | 8.8 | 17 | .40 |
| 25 | 8.4 | 10 | .23 | 31 | 148 | 18 | 8.2 | 14 | .31 |
| 26 | 8.7 | 10 | .24 | 354 | 2050 | 6250 | 7.9 | 13 | .29 |
| 27 | 8.8 | 10 | .26 | 54 | 287 | 62 | 7.8 | 16 | .32 |
| 28 | 9.7 | 13 | .34 | 31 | 141 | 18 | 7.2 | 19 | .37 |
| 29 | 561 | 2210 | 15100 | 58 | 365 | 254 | 6.9 | 19 | .34 |
| 30 | 121 | 854 | 1190 | 74 | 457 | 170 | 7.3 | 19 | .38 |
| 31 | --- | --- | --- | 29 | 127 | 17 | --- | --- | --- |
| TOTAL | 1027.6 | --- | 17054.78 | 1846.0 | --- | 17402.34 | 730.3 | --- | 4542.59 |

RIO PUERTO NUEVO BASIN

50049000 RIO PIEDRAS AT RIO PIEDRAS, PR--Continued

SEDIMENT DISCHARGE, SUSPENDED (TONS/DAY), WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993

| DAY | MEAN DISCHARGE (CFS) | MEAN CONCEN- TRATION (MG/L) | SEDIMENT DISCHARGE (TONS/DAY) | MEAN DISCHARGE (CFS) | MEAN CONCEN- TRATION (MG/L) | SEDIMENT DISCHARGE (TONS/DAY) | MEAN DISCHARGE (CFS) | MEAN CONCEN- TRATION (MG/L) | SEDIMENT DISCHARGE (TONS/DAY) |
|-------|----------------------------|--------------------------------------|-------------------------------------|----------------------------|--------------------------------------|-------------------------------------|----------------------------|--------------------------------------|-------------------------------------|
| JULY | | | AUGUST | | | SEPTEMBER | | | |
| 1 | 7.7 | 19 | .38 | 33 | 137 | 26 | 9.6 | 65 | 2.7 |
| 2 | 7.6 | 19 | .37 | 40 | 223 | 86 | 6.6 | 28 | .48 |
| 3 | 8.3 | 14 | .31 | 18 | 60 | 3.6 | 6.3 | 17 | .28 |
| 4 | 14 | 49 | 6.4 | 20 | 78 | 8.2 | 6.3 | 13 | .21 |
| 5 | 9.0 | 18 | .45 | 155 | 1260 | 2910 | 8.2 | 18 | .50 |
| 6 | 8.9 | 16 | .39 | 16 | 127 | 6.4 | 59 | 399 | 584 |
| 7 | 8.1 | 16 | .32 | 20 | 119 | 19 | 7.8 | 19 | .43 |
| 8 | 41 | 207 | 45 | 8.3 | 21 | .54 | 5.7 | 12 | .17 |
| 9 | 56 | 324 | 119 | 222 | 1460 | 4610 | 5.5 | 11 | .16 |
| 10 | 13 | 37 | 1.2 | 154 | 937 | 2090 | 5.4 | 12 | .17 |
| 11 | 28 | 111 | 13 | 20 | 85 | 5.8 | 8.1 | 26 | .82 |
| 12 | 12 | 33 | 1.1 | 15 | 46 | 2.4 | 5.6 | 11 | .17 |
| 13 | 33 | 248 | 78 | 20 | 104 | 7.7 | 6.5 | 11 | .20 |
| 14 | 43 | 389 | 137 | 274 | 1050 | 3790 | 6.2 | 11 | .17 |
| 15 | 29 | 137 | 31 | 34 | 153 | 20 | 6.3 | 11 | .16 |
| 16 | 17 | 61 | 5.0 | 19 | 64 | 4.9 | 5.8 | 10 | .16 |
| 17 | 51 | 265 | 62 | 12 | 31 | .99 | 17 | 64 | 6.6 |
| 18 | 13 | 35 | 1.2 | 9.7 | 26 | .70 | 6.6 | 18 | .38 |
| 19 | 11 | 26 | .72 | 8.5 | 21 | .48 | 18 | 104 | 54 |
| 20 | 105 | 581 | 690 | 10 | 16 | .40 | 62 | 957 | 1410 |
| 21 | 21 | 71 | 4.4 | 324 | 1580 | 8860 | 16 | 65 | 10 |
| 22 | 18 | 66 | 4.3 | 30 | 120 | 13 | 6.7 | 15 | .48 |
| 23 | 11 | 30 | .99 | 38 | 219 | 80 | 99 | 393 | 918 |
| 24 | 76 | 528 | 310 | 10 | 30 | .94 | 8.7 | 21 | .52 |
| 25 | 18 | 63 | 4.3 | 8.5 | 19 | .41 | 6.3 | 11 | .17 |
| 26 | 13 | 57 | 3.1 | 8.3 | 17 | .35 | 5.8 | 10 | .15 |
| 27 | 123 | 614 | 1240 | 7.1 | 23 | .42 | 5.0 | 10 | .15 |
| 28 | 25 | 135 | 13 | 6.3 | 20 | .30 | 4.8 | 10 | .13 |
| 29 | 12 | 28 | 1.0 | 6.5 | 11 | .19 | 5.4 | 10 | .14 |
| 30 | 9.3 | 21 | .51 | 20 | 102 | 47 | 85 | 244 | 379 |
| 31 | 124 | 810 | 1520 | 28 | 127 | 24 | --- | --- | --- |
| TOTAL | 965.9 | --- | 4294.44 | 1595.2 | --- | 22619.72 | 505.2 | --- | 3370.50 |
| YEAR | 9865.4 | | 85825.74 | | | | | | |

RIO PUERTO NUEVO BASIN

50049000 RIO PIEDRAS AT RIO PIEDRAS, PR--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993

PARTICLE-SIZE DISTRIBUTION OF SUSPENDED SEDIMENT

| DATE | TIME | DIS- CHARGE, INST. CUBIC FEET PER SECOND | SEDI- MENT, DIS- CHARGE, SUS- PENDED (MG/L) | SEDI- MENT, DIS- CHARGE, SUS- PENDED (T/DAY) | SED. SUSP. FALL DIAM. PERCENT FINER THAN .002 MM | SED. SUSP. FALL DIAM. PERCENT FINER THAN .004 MM | SED. SUSP. FALL DIAM. PERCENT FINER THAN .008 MM |
|----------|------|--|---|--|---|---|---|
| NOV 1992 | | | | | | | |
| 18... | 1345 | 2450 | 16000 | 106000 | 30 | 43 | 48 |
| 30... | 1405 | 1190 | 3520 | 11300 | 37 | 43 | 48 |
| DEC | | | | | | | |
| 14... | 2138 | 2890 | 9510 | 74000 | 34 | 45 | 50 |
| 26... | 0050 | 602 | 5520 | 8980 | 40 | 48 | 57 |
| APR 1993 | | | | | | | |
| 29... | 1937 | 3240 | 5080 | 44500 | 32 | 37 | 41 |

| DATE | SED. SUSP. FALL DIAM. PERCENT FINER THAN .016 MM | SED. SUSP. FALL DIAM. PERCENT FINER THAN .031 MM | SED. SUSP. SIEVE DIAM. PERCENT FINER THAN .062 MM | SED. SUSP. SIEVE DIAM. PERCENT FINER THAN .125 MM | SED. SUSP. SIEVE DIAM. PERCENT FINER THAN .250 MM | SED. SUSP. SIEVE DIAM. PERCENT FINER THAN .500 MM | SED. SUSP. SIEVE DIAM. PERCENT FINER THAN 1.00 MM |
|----------|---|---|--|--|--|--|--|
| NOV 1992 | | | | | | | |
| 18... | 59 | 70 | 83 | 92 | 98 | 99 | 100 |
| 30... | 56 | 67 | 77 | 90 | 98 | 99 | 100 |
| DEC | | | | | | | |
| 14... | 63 | 74 | 84 | 92 | 98 | 99.7 | 100 |
| 25... | 66 | 79 | 89 | 95 | 99 | 99.8 | 100 |
| APR 1993 | | | | | | | |
| 29... | 46 | 57 | 71 | 84 | 94 | 99 | 100 |

RIO PUERTO NUEVO BASIN

50049000 RIO PIEDRAS AT RIO PIEDRAS, PR--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993

SILT AND CLAY PERCENT OF SUSPENDED SEDIMENT

| DATE | TIME | STREAM- FLOW, INSTAN- TANEOUS (CFS) | SEDI- MENT, SUS- PENDEED (MG/L) | SEDI- MENT, DIS- CHARGE, SUS- PENDEED (T/DAY) | SED. SUSP. SIEVE DIAM. PERCENT FINER THAN .062 MM |
|----------|------|---|---|---|--|
| NOV 1992 | | | | | |
| 18... | 1445 | 3920 | 5270 | 55780 | 74 |
| 18... | 1715 | 438 | 1500 | 1770 | 91 |
| 20... | 1320 | 622 | 1480 | 2480 | 74 |
| DEC | | | | | |
| 14... | 2008 | 1420 | 3220 | 12340 | 60 |
| 15... | 0008 | 1130 | 2860 | 8720 | 71 |
| 24... | 0930 | 291 | 2460 | 1930 | 95 |
| 24... | 1245 | 291 | 810 | 636 | 99 |
| 25... | 2350 | 296 | 1610 | 1290 | 89 |
| 26... | 0505 | 304 | 2010 | 1650 | 91 |
| APR 1993 | | | | | |
| 29... | 1852 | 515 | 4650 | 6460 | 57 |
| 30... | 0037 | 573 | 2580 | 3990 | 81 |

RIO PUERTO NUEVO BASIN

50049100 RIO PIEDRAS AT HATO REY, PR

LOCATION.--Lat 18°24'34", long 66°04'10", Hydrologic Unit 21010005, at bridge on Avenida Pifeiro at Expreso Las Américas, and 0.8 mi (1.3 km) southwest of Hato Rey.

DRAINAGE AREA.--15.4 mi² (39.9 km²).

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--June 1970 to December 1987 (discharge measurements only), 1972 to December 1982 (maximum discharge only), January 1988 to current year.

GAGE.--Water-stage recorder and crest-stage gage. Elevation of gage is 16 ft (5 m), from topographic map.

REMARKS.--Records fair except those for estimated daily discharges, which are poor. Mean daily discharge affected by sewage discharges (approximately 2.0 ft³/s (0.06 m³/s)), 20 ft (6 m) upstream from gaging station.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993
DAILY MEAN VALUES

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|-------|------|-------|-------|------|------|------|------|------|------|------|------|------|
| 1 | 18 | 83 | 100 | 84 | 47 | 23 | e27 | 93 | 16 | 12 | 21 | 16 |
| 2 | 16 | 42 | 85 | 81 | 45 | 21 | e30 | 82 | 15 | 66 | 20 | 18 |
| 3 | 16 | 343 | e87 | 100 | 61 | 20 | e29 | 164 | 15 | 58 | 21 | 16 |
| 4 | 44 | 1680 | e117 | 83 | 40 | 20 | e29 | 81 | 14 | 16 | 18 | 15 |
| 5 | 17 | 153 | 82 | 122 | 39 | 21 | e27 | 62 | 15 | 14 | 16 | 31 |
| 6 | 19 | 150 | 78 | 126 | 34 | 21 | e35 | 78 | 14 | 14 | 16 | 338 |
| 7 | 21 | 110 | 67 | 322 | 33 | 20 | e60 | 229 | 14 | 264 | 15 | 61 |
| 8 | 101 | 102 | 70 | 113 | 30 | 18 | e110 | 107 | 40 | 49 | 15 | 42 |
| 9 | 36 | 114 | 70 | 91 | 29 | 19 | e35 | 94 | 62 | 26 | 15 | 25 |
| 10 | 85 | 93 | 71 | 91 | 29 | 29 | e30 | 93 | 26 | 24 | 15 | 107 |
| 11 | 29 | 76 | 73 | 88 | 25 | 20 | e250 | 75 | 13 | 862 | 15 | 19 |
| 12 | 17 | 175 | 73 | 107 | 37 | 23 | e40 | 59 | 18 | 106 | 13 | 15 |
| 13 | 15 | 130 | 78 | 83 | 25 | 41 | e110 | 52 | 82 | 43 | 12 | 41 |
| 14 | 26 | 85 | e902 | 93 | 21 | 28 | e90 | 78 | 31 | 39 | 13 | 15 |
| 15 | 16 | 123 | 286 | 79 | 21 | 24 | e35 | 45 | 82 | 56 | 18 | 20 |
| 16 | 65 | 93 | 109 | 77 | 20 | 107 | e30 | 36 | 24 | 24 | 40 | 16 |
| 17 | 22 | 199 | 104 | 73 | 55 | 44 | e50 | 34 | 17 | 19 | 13 | 124 |
| 18 | 51 | 699 | 108 | 71 | 23 | 34 | e27 | 29 | 20 | 17 | 12 | 30 |
| 19 | 19 | 154 | 117 | 71 | 22 | 33 | e25 | 26 | 459 | 24 | 12 | 43 |
| 20 | 20 | e328 | 99 | 69 | 60 | 32 | e100 | 29 | 136 | 16 | 12 | 13 |
| 21 | 20 | 119 | 102 | 69 | 27 | 30 | e300 | 32 | 28 | 31 | 16 | 43 |
| 22 | 38 | e255 | 121 | 255 | 22 | 31 | e26 | 24 | 28 | 267 | 17 | 13 |
| 23 | 85 | 109 | 123 | 102 | 23 | 48 | 19 | 201 | 19 | 362 | 14 | 41 |
| 24 | 65 | e102 | 259 | 79 | 22 | 379 | 30 | 133 | 26 | 177 | 13 | 13 |
| 25 | 28 | 94 | 201 | 119 | 24 | 76 | 35 | 100 | 16 | 29 | 14 | 11 |
| 26 | 31 | 82 | 565 | 68 | 21 | 48 | 29 | 72 | 16 | 255 | 12 | 15 |
| 27 | 102 | e308 | 204 | 60 | 21 | 44 | 39 | 393 | 16 | 72 | 13 | 27 |
| 28 | 30 | e605 | 273 | 57 | 19 | 38 | 120 | 117 | 16 | 23 | 16 | 47 |
| 29 | 31 | e231 | 323 | 74 | --- | 37 | 685 | 35 | 51 | 18 | 111 | 14 |
| 30 | 185 | e202 | 181 | 61 | --- | 34 | 401 | 23 | 16 | 18 | 47 | 26 |
| 31 | 50 | --- | 95 | 50 | --- | 31 | --- | 17 | --- | 19 | 22 | --- |
| TOTAL | 1318 | 7039 | 5223 | 3018 | 875 | 1394 | 2853 | 2693 | 1345 | 3020 | 627 | 1255 |
| MEAN | 42.5 | 235 | 168 | 97.4 | 31.2 | 45.0 | 95.1 | 86.9 | 44.8 | 97.4 | 20.2 | 41.8 |
| MAX | 185 | 1680 | 902 | 322 | 61 | 379 | 685 | 393 | 459 | 862 | 111 | 338 |
| MIN | 15 | 42 | 67 | 50 | 19 | 18 | 19 | 17 | 13 | 12 | 12 | 11 |
| AC-FT | 2610 | 13960 | 10360 | 5990 | 1740 | 2760 | 5660 | 5340 | 2670 | 5990 | 1240 | 2490 |
| CFSM | 2.80 | 15.4 | 11.1 | 6.40 | 2.06 | 2.96 | 6.26 | 5.72 | 2.95 | 6.41 | 1.33 | 2.75 |
| IN. | 3.23 | 17.23 | 12.78 | 7.39 | 2.14 | 3.41 | 6.98 | 6.59 | 3.29 | 7.39 | 1.53 | 3.07 |

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1988 - 1993, BY WATER YEAR (WY)

| | MEAN | 63.7 | 82.3 | 61.1 | 51.5 | 39.0 | 35.4 | 57.2 | 57.4 | 41.4 | 50.5 | 54.7 | 68.8 |
|------|------|------|------|------|------|------|------|------|------|------|------|------|------|
| MAX | 134 | 235 | 168 | 97.4 | 80.2 | 53.8 | 95.1 | 97.5 | 78.1 | 97.4 | 84.2 | 150 | |
| (WY) | 1991 | 1993 | 1993 | 1993 | 1991 | 1990 | 1993 | 1992 | 1989 | 1993 | 1988 | 1989 | |
| MIN | 16.6 | 23.9 | 18.8 | 29.9 | 10.8 | 22.2 | 31.6 | 30.8 | 23.0 | 24.8 | 20.2 | 32.6 | |
| (WY) | 1992 | 1991 | 1992 | 1989 | 1992 | 1992 | 1991 | 1989 | 1991 | 1990 | 1993 | 1991 | |

SUMMARY STATISTICS

FOR 1992 CALENDAR YEAR

FOR 1993 WATER YEAR

WATER YEARS 1988 - 1993

| | | | |
|--------------------------|---------|--------|-------|
| ANNUAL TOTAL | 27647.4 | 30660 | |
| ANNUAL MEAN | 75.5 | 84.0 | 54.2 |
| HIGHEST ANNUAL MEAN | | | 84.0 |
| LOWEST ANNUAL MEAN | | | 41.4 |
| HIGHEST DAILY MEAN | 1680 | Nov 4 | 1830 |
| LOWEST DAILY MEAN | 6.9 | Mar 1 | 6.9 |
| ANNUAL SEVEN-DAY MINIMUM | 7.8 | Feb 26 | 7.8 |
| INSTANTANEOUS PEAK FLOW | | | 8640 |
| INSTANTANEOUS PEAK STAGE | | | 20.77 |
| ANNUAL RUNOFF (AC-FT) | 54840 | 60810 | 39270 |
| ANNUAL RUNOFF (CFSM) | 4.97 | 5.53 | 3.57 |
| ANNUAL RUNOFF (INCHES) | 67.66 | 75.04 | 48.46 |
| 10 PERCENT EXCEEDS | 196 | 183 | 120 |
| 50 PERCENT EXCEEDS | 25 | 39 | 23 |
| 90 PERCENT EXCEEDS | 9.9 | 15 | 12 |

e Estimated

RIO PUERTO NUEVO BASIN

50049100 RIO PIEDRAS AT HATO REY, PR

WATER-QUALITY RECORDS

LOCATION.--Lat 18°24'34", long 66°04'10", at bridge on Avenida Piñero at Expreso Las Americas, and 0.8 mi (1.3 km) southwest of Hato Rey.

DRAINAGE AREA.--15.4 mi² (39.9 km²).

PERIOD OF RECORD.--Water years 1971 to current year.

WATER-QUALITY DATA, WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993

| DATE | TIME | DIS-CHARGE, INST. CUBIC FEET PER SECOND | SPE-CIFIC CON-DUCT-ANCE (US/CM) | PH WATER WHOLE FIELD (STAND-ARD UNITS) | TEMPER-ATURE WATER (DEG C) | TUR-BID-ITY (NTU) | OXYGEN, DIS-SOLVED (MG/L) | OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION) | OXYGEN DEMAND, CHEM-ICAL (HIGH LEVEL) (MG/L) | COLI-FORM, FECAL, 0.45 UM-MF (COLS./100 ML) | STREP-TOCOCCI, FECAL, (COLS. PER 100 ML) |
|-----------|------|---|---------------------------------|--|----------------------------|-------------------|---------------------------|---|--|---|--|
| OCT 1992 | | | | | | | | | | | |
| 01... | 1235 | 18 | 400 | 7.8 | 29.5 | 4.2 | 5.6 | 73 | 17 | K700000 | 45000 |
| DEC 15... | 1210 | 78 | 410 | 6.9 | 25.0 | 11 | 6.2 | 81 | 20 | K600000 | K600000 |
| FEB 1993 | | | | | | | | | | | |
| 16... | 1220 | 23 | 735 | 7.6 | 26.0 | 29 | 6.0 | 78 | 180 | 600000 | K100000 |
| APR 22... | 1150 | 29 | 415 | 7.0 | 28.0 | 12 | 4.0 | 52 | 30 | 560000 | 52000 |
| JUN 01... | 1545 | 16 | 500 | 7.1 | 32.5 | 3.2 | 8.4 | 110 | 38 | K80000 | 3700 |
| AUG 04... | 1125 | 22 | 460 | 7.8 | 26.5 | 0.20 | 11.0 | 145 | 17 | K200000 | K12000 |

| DATE | HARD-NESS TOTAL (MG/L AS CaCO3) | HARD-NESS NONCARB WH WAT TOT FLD (MG/L AS CaCO3) | CALCIUM DIS-SOLVED (MG/L AS Ca) | MAGNE-SIUM, DIS-SOLVED (MG/L AS Mg) | SODIUM, DIS-SOLVED (MG/L AS Na) | SODIUM AD-SORP-TION RATIO | POTAS-SIUM, DIS-SOLVED (MG/L AS K) | ALKA-LINITY WAT WH TOT FET FIELD (MG/L AS CaCO3) | SULFIDE TOTAL (MG/L AS S) | SULFATE DIS-SOLVED (MG/L AS SO4) | CHLO-RIDE, DIS-SOLVED (MG/L AS Cl) |
|-----------|---------------------------------|--|---------------------------------|-------------------------------------|---------------------------------|---------------------------|------------------------------------|--|---------------------------|----------------------------------|------------------------------------|
| OCT 1992 | | | | | | | | | | | |
| 01... | 140 | 0 | 42 | 9.0 | 22 | 0.8 | 3.9 | 140 | <0.5 | 25 | 27 |
| DEC 15... | -- | -- | -- | -- | -- | -- | -- | 110 | -- | -- | -- |
| FEB 1993 | | | | | | | | | | | |
| 16... | -- | -- | -- | -- | -- | -- | -- | 200 | -- | -- | -- |
| APR 22... | 130 | 1 | 35 | 9.4 | 21 | 0.8 | 3.5 | 120 | <0.5 | 25 | 26 |
| JUN 01... | -- | -- | -- | -- | -- | -- | -- | 130 | -- | -- | -- |
| AUG 04... | 170 | 0 | 47 | 12 | 29 | 1 | 3.4 | 150 | -- | 23 | 29 |

| DATE | FLUO-RIDE, DIS-SOLVED (MG/L AS F) | SILICA, DIS-SOLVED (MG/L AS SiO2) | SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L) | SOLIDS, DIS-SOLVED (TONS PER DAY) | RESIDUE TOTAL AT 105 DEG. C, SUS-PENDED (MG/L) | NITRO-GEN, NITRATE TOTAL (MG/L AS N) | NITRO-GEN, NITRITE TOTAL (MG/L AS N) | NITRO-GEN, NO2+NO3 TOTAL (MG/L AS N) | NITRO-GEN, AMMONIA TOTAL (MG/L AS N) | NITRO-GEN, ORGANIC TOTAL (MG/L AS N) |
|-----------|-----------------------------------|-----------------------------------|---|-----------------------------------|--|--------------------------------------|--------------------------------------|--------------------------------------|--------------------------------------|--------------------------------------|
| OCT 1992 | | | | | | | | | | |
| 01... | 0.20 | 22 | 235 | 11.4 | <1 | 0.700 | 0.070 | 0.770 | 1.30 | 1.1 |
| DEC 15... | -- | -- | -- | -- | 9 | 0.800 | 0.100 | 0.900 | 0.590 | 1.3 |
| FEB 1993 | | | | | | | | | | |
| 16... | -- | -- | -- | -- | 65 | 0.790 | 0.010 | 0.800 | 0.020 | 0.48 |
| APR 22... | 0.20 | 23 | 215 | 16.8 | 1 | 1.21 | 0.090 | 1.22 | 1.10 | 1.1 |
| JUN 01... | -- | -- | -- | -- | 34 | 0.590 | 0.010 | 0.600 | 1.10 | 1.5 |
| AUG 04... | 0.20 | 27 | 268 | 15.9 | 2 | 0.520 | 0.080 | 0.600 | 1.50 | 1.4 |

K = non-ideal count

50049100 RIO PIEDRAS AT HATO REY, PR--Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993

| DATE | NITRO- GEN, AM- MONIA + ORGANIC TOTAL (MG/L AS N) | NITRO- GEN, TOTAL (MG/L AS N) | NITRO- GEN, TOTAL (MG/L AS NO3) | PHOS- PHORUS TOTAL (MG/L AS P) | ARSENIC TOTAL (UG/L AS AS) | BARIUM, TOTAL RECOV- ERABLE (UG/L AS BA) | BORON, TOTAL RECOV- ERABLE (UG/L AS B) | CADMIUM TOTAL RECOV- ERABLE (UG/L AS CD) | CHRO- MIUM, TOTAL RECOV- ERABLE (UG/L AS CR) | COPPER, TOTAL RECOV- ERABLE (UG/L AS CU) |
|-----------|---|---|---|--|-------------------------------------|---|---|---|--|---|
| OCT 1992 | | | | | | | | | | |
| 01... | 2.4 | 3.2 | 14 | 0.420 | 2 | 200 | 40 | <1 | <1 | <10 |
| DEC 15... | 1.9 | 3.1 | 9.2 | 0.380 | -- | -- | -- | -- | -- | -- |
| FEB 1993 | | | | | | | | | | |
| 16... | 0.50 | 0.30 | 5.8 | 0.020 | -- | -- | -- | -- | -- | -- |
| APR 22... | 2.2 | 1.2 | 16 | 0.160 | 2 | 200 | 60 | <1 | 4 | 20 |
| JUN 01... | 2.6 | 0.90 | 15 | 0.230 | -- | -- | -- | -- | -- | -- |
| AUG 04... | 2.9 | 0.80 | 9 | 0.210 | -- | -- | -- | -- | -- | -- |

[illegible]

RIO PUERTO NUEVO BASIN

50049820 LAGUNA SAN JOSE NO. 2 AT SAN JUAN, PR

WATER-QUALITY RECORDS

LOCATION.--Lat 18°25'46", long 66°02'10", 0.2 mi (0.3 km) east of Ca-o de Martin Pe-a, and 650 ft (200 m) south of Isla Guachinango.

DRAINAGE AREA.--Indeterminate.

PERIOD OF RECORD.--Water years 1974 to current year.

WATER-QUALITY DATA, WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993

| DATE | TIME | SPE- CIFIC CON- DUCT- ANCE (US/CM) | WATER WHOLE FIELD (STAND- ARD UNITS) | PH TEMPER- ATURE WATER (DEG C) | TRANS- PAR- ENCY (SECCHI DISK) (IN) | OXYGEN, DIS- SOLVED (MG/L) | DIS- SOLVED (PER- CENT SATUR- ATION) | OXYGEN, FORM, FECAL, 0.45 UM-MF (COLS./ 100 ML) | COLI- STREP- TOCOCCI FECAL, (COLS. PER 100 ML) |
|----------|------|---|---|--|--|-------------------------------------|---|---|--|
| NOV 1992 | | | | | | | | | |
| 05... | 0800 | 13200 | 7.6 | 26.0 | 18 | 4.8 | 58 | 4700 | K6000 |
| JAN 1993 | | | | | | | | | |
| 05... | 0820 | 32000 | 7.5 | 28.5 | 19.9 | 3.7 | 48 | 32000 | 7100 |
| MAR | | | | | | | | | |
| 08... | 1000 | 21000 | 7.2 | 25.2 | 36 | 5.0 | 59 | 3900 | K200 |
| MAY | | | | | | | | | |
| 04... | 0930 | 12800 | 7.5 | 27.5 | 28 | 4.7 | 58 | K12000 | K730 |
| JUN | | | | | | | | | |
| 21... | 1025 | 14000 | 7.7 | 27.6 | 26 | 6.1 | 76 | K10000 | -- |
| AUG | | | | | | | | | |
| 24... | 1045 | 22500 | 7.1 | 30.5 | 37 | 2.0 | 24 | K18000 | K90000 |

| DATE | RESIDUE TOTAL AT 105 DEG. C, SUS- PENDED (MG/L) | NITRO- GEN, NITRATE TOTAL (MG/L AS N) | NITRO- GEN, NITRITE TOTAL (MG/L AS N) | NITRO- GEN, NO2+NO3 TOTAL (MG/L AS N) | NITRO- GEN, AMMONIA TOTAL (MG/L AS N) | NITRO- GEN, ORGANIC TOTAL (MG/L AS N) | NITRO- GEN,AM- MONIA + ORGANIC TOTAL (MG/L AS N) | NITRO- GEN, TOTAL (MG/L AS N) | PHOS- PHORUS TOTAL (MG/L AS P) | CARBON, ORGANIC TOTAL (MG/L AS C) |
|----------|---|--|--|--|--|--|--|---|--|---|
| NOV 1992 | | | | | | | | | | |
| 05... | 6 | 0.090 | 0.010 | 0.100 | 0.220 | 2.2 | 2.4 | 2.5 | 0.57 | 16 |
| JAN 1993 | | | | | | | | | | |
| 05... | 28 | -- | <0.010 | 0.100 | 0.120 | 2.4 | 2.5 | 2.6 | 0.53 | 18 |
| MAR | | | | | | | | | | |
| 08... | <1 | -- | <0.010 | 0.100 | 1.20 | 2.5 | 3.7 | 3.8 | 0.70 | 13 |
| MAY | | | | | | | | | | |
| 04... | 13 | -- | <0.010 | 0.100 | 0.050 | 2.4 | 2.4 | 2.5 | 0.31 | 11 |
| JUN | | | | | | | | | | |
| 21... | 15 | 0.070 | 0.030 | 0.100 | 0.110 | 1.8 | 1.7 | 1.8 | 0.26 | 13 |
| AUG | | | | | | | | | | |
| 24... | 4 | -- | <0.010 | 0.100 | 0.050 | 1.7 | 1.8 | 1.9 | 0.40 | 16 |

K = non-ideal count

RIO PUERTO NUEVO BASIN

50049920 BAHIA DE SAN JUAN NO. 5 AT SAN JUAN, PR

WATER-QUALITY RECORDS

LOCATION--Lat 18°26'37", long 66°05'11", 0.4 mi (0.6 km) west of Puente de la Constituci[n, and 0.5 mi (0.8 km) south from U.S. Naval Reservation.

DRAINAGE--Indeterminate.

PERIOD OF RECORD--Water years 1974 to present.

WATER-QUALITY DATA, WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993

| DATE | TIME | SPE- CIFIC CON- DUCT- ANCE (US/CM) | PH WATER FIELD (STAND- ARD UNITS) | TEMPER- ATURE WATER (DEG C) | TRANS- PAR- ENCY (SECCHI DISK) (IN) | OXYGEN, DIS- SOLVED (MG/L) | OXYGEN, DIS- SOLVED SATUR- ATION) | COLI- FORM, FECAL, 0.45 UM-MF (COLS./ 100 ML) | STREP- TOCOCCI FECAL, (COLS. PER 100 ML) | ALKA- LITY WAT WH TOT FET FIELD MG/L AS CACO3 |
|----------|------|---|--|--------------------------------------|--|-------------------------------------|---|---|---|---|
| NOV 1992 | | | | | | | | | | |
| 05... | 0915 | 11700 | 7.1 | 26.0 | 7 | 1.5 | 18 | K6000 | K6000 | 140 |
| JAN 1993 | | | | | | | | | | |
| 05... | 0930 | 43000 | 7.3 | 24.6 | 14 | 1.8 | 21 | 320000 | 230000 | 150 |
| MAR | | | | | | | | | | |
| 08... | 1055 | 42100 | 7.6 | 26.0 | 30 | 4.0 | 48 | 360000 | 30000 | 120 |
| MAY | | | | | | | | | | |
| 04... | 1030 | 25400 | 7.2 | 28.0 | 7 | 1.4 | 18 | 46000 | 35000 | 130 |
| JUN | | | | | | | | | | |
| 21... | 1110 | 30000 | 6.9 | 28.4 | 24 | 0.2 | 2 | 160000 | 180000 | 120 |
| AUG | | | | | | | | | | |
| 24... | 1150 | >50000 | 7.9 | 29.4 | 16 | 1.6 | 20 | 58000 | K120000 | 120 |

| DATE | RESIDUE TOTAL AT 105 DEG. C, SUS- PENDEED (MG/L) | NITRO- GEN, NITRATE TOTAL (MG/L AS N) | NITRO- GEN, NITRITE TOTAL (MG/L AS N) | NITRO- GEN, NO2+NO3 TOTAL (MG/L AS N) | NITRO- GEN, AMMONIA TOTAL (MG/L AS N) | NITRO- GEN, ORGANIC TOTAL (MG/L AS N) | NITRO- GEN,AM- MONIA + ORGANIC TOTAL (MG/L AS N) | NITRO- GEN, TOTAL (MG/L AS N) | NITRO- GEN, TOTAL (MG/L AS NO3) | PHOS- PHORUS TOTAL (MG/L AS P) | CARBON, ORGANIC TOTAL (MG/L AS C) |
|----------|--|--|--|--|--|--|--|---|---|--|---|
| NOV 1992 | | | | | | | | | | | |
| 05... | 5 | 0.060 | 0.040 | 0.100 | 0.900 | 1.0 | 0.90 | 2.0 | 1.9 | 0.280 | 4.8 |
| JAN 1993 | | | | | | | | | | | |
| 05... | 12 | 0.090 | 0.010 | 0.100 | 0.640 | 0.06 | 0.70 | 0.80 | -- | 0.080 | 2.4 |
| MAR | | | | | | | | | | | |
| 08... | 15 | 0.090 | 0.010 | 0.100 | 1.20 | 2.0 | 3.2 | 3.3 | -- | 0.300 | 5.2 |
| MAY | | | | | | | | | | | |
| 04... | 70 | 0.070 | 0.030 | 0.100 | 1.70 | 1.5 | 3.2 | 3.4 | -- | 0.310 | 3.1 |
| JUN | | | | | | | | | | | |
| 21... | 17 | 0.230 | 0.070 | 0.300 | 2.20 | 0.60 | 2.8 | 3.1 | 14 | 0.410 | 2.0 |
| AUG | | | | | | | | | | | |
| 24... | 19 | 0.160 | 0.040 | 0.200 | 0.78 | 0.32 | 1.1 | 1.3 | 5.8 | 0.140 | 4.7 |

K = non-ideal count

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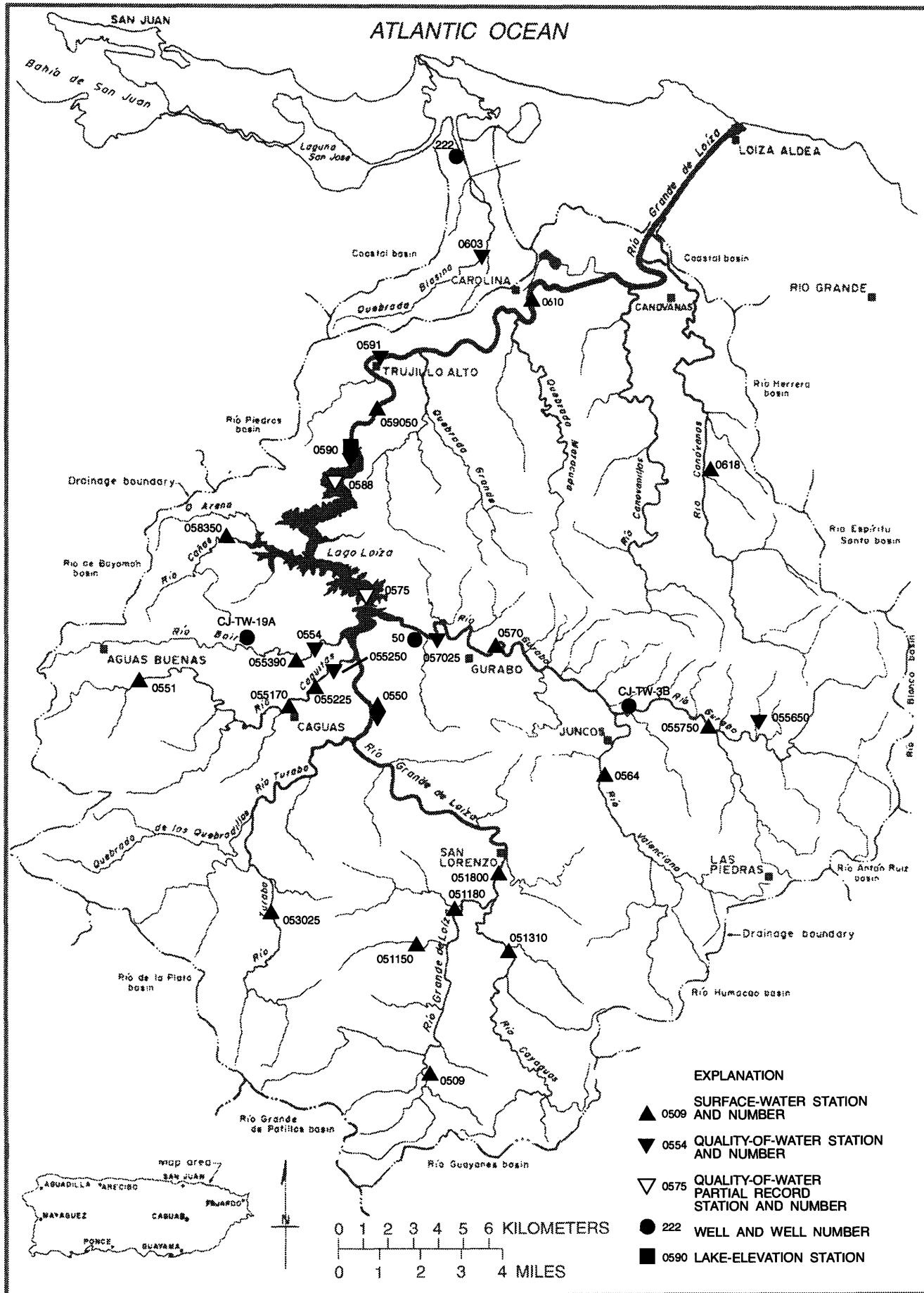


Figure 20.--Río Grande de Loíza basin.

RIO GRANDE DE LOIZA BASIN

50050300 QUEBRADA BLASINA NEAR CAROLINA, PR

WATER-QUALITY RECORDS

LOCATION.--Lat 18°23'27", long 65°58'28", at bridge on Highway 3, 1.4 mi (2.3 km) south of Valle Arriba Heights housing area, and 1.2 mi (1.9 km) west-southwest of Carolina plaza.

DRAINAGE AREA.--2.96 mi² (7.67 km²).

PERIOD OF RECORD.--Water years 1973 to current year.

WATER-QUALITY DATA, WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993

| DATE | TIME | DIS-CHARGE, INST. CUBIC FEET PER SECOND | SPE-CIFIC CON-DUCT-ANCE (US/CM) | PH WATER WHOLE FIELD (STAND-ARD UNITS) | TEMPER-ATURE WATER (DEG C) | TUR-BID-ITY (NTU) | OXYGEN, DIS-SOLVED (MG/L) | OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION) | OXYGEN DEMAND, CHEM-ICAL (HIGH LEVEL) (MG/L) | COLI-FORM, FECAL, 0.45 UM-MF (COLS./100 ML) | STREP-TOCOCCI, FECAL, (COLS. PER 100 ML) |
|-----------|------|---|---------------------------------|--|----------------------------|-------------------|---------------------------|---|--|---|--|
| OCT 1992 | | | | | | | | | | | |
| 21... | 1205 | 8.4 | 404 | 7.5 | 28.0 | 8.2 | 5.3 | 66 | <10 | K100000 | K24000 |
| DEC 16... | 0900 | 6.3 | 418 | 7.5 | 23.9 | 32 | 6.5 | 87 | <10 | 380000 | 53000 |
| FEB 1993 | | | | | | | | | | | |
| 16... | 0915 | 7.9 | 494 | 7.2 | 23.5 | 220 | 4.4 | 58 | 170 | 600000 | 250000 |
| APR 15... | 1410 | 4.7 | 558 | 7.3 | 28.5 | 3.3 | 3.2 | 41 | 20 | K19000 | 24000 |
| JUN 08... | 1200 | 8.4 | 557 | 7.6 | 27.0 | 780 | 5.2 | 68 | 300 | 530000 | 950000 |
| AUG 09... | 1350 | 5.8 | 441 | 7.3 | 29.0 | 54 | 5.9 | 79 | 24 | 20000 | K2900 |

| DATE | HARD-NESS TOTAL (MG/L AS CaCO3) | HARD-NESS NONCARB WH WAT TOT FLD (MG/L AS CaCO3) | CALCIUM DIS-SOLVED (MG/L AS Ca) | MAGNE-SIUM, DIS-SOLVED (MG/L AS Mg) | SODIUM, DIS-SOLVED (MG/L AS Na) | SODIUM AD-SORP-TION RATIO | POTAS-SIUM, DIS-SOLVED (MG/L AS K) | ALKA-LINITY WAT WH TOT FET FIELD (MG/L AS CaCO3) | SULFIDE TOTAL (MG/L AS S) | SULFATE DIS-SOLVED (MG/L AS SO4) | CHLO-RIDE, DIS-SOLVED (MG/L AS Cl) |
|-----------|---------------------------------|--|---------------------------------|-------------------------------------|---------------------------------|---------------------------|------------------------------------|--|---------------------------|----------------------------------|------------------------------------|
| OCT 1992 | | | | | | | | | | | |
| 21... | 170 | 13 | 50 | 8.7 | 32 | 2 | 4.9 | 160 | <0.5 | 26 | 30 |
| DEC 16... | -- | -- | -- | -- | -- | -- | -- | 130 | -- | -- | -- |
| FEB 1993 | | | | | | | | | | | |
| 16... | -- | -- | -- | -- | -- | -- | -- | 220 | -- | -- | -- |
| APR 15... | 180 | 6 | 54 | 11 | 33 | 1 | 3.1 | 170 | <0.5 | 23 | 40 |
| JUN 08... | -- | -- | -- | -- | -- | -- | -- | 150 | -- | -- | -- |
| AUG 09... | 160 | 11 | 49 | 8.0 | 29 | 0.8 | 4.5 | 130 | -- | 34 | 33 |

| DATE | FLUO-RIDE, DIS-SOLVED (MG/L AS F) | SILICA, DIS-SOLVED (MG/L AS SiO2) | SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L) | SOLIDS, DIS-SOLVED (TONS PER DAY) | RESIDUE TOTAL AT 105 DEG. C, SUS-PENDED (MG/L) | NITRO-GEN, NITRATE TOTAL (MG/L AS N) | NITRO-GEN, NITRITE TOTAL (MG/L AS N) | NITRO-GEN, NO2+NO3 TOTAL (MG/L AS N) | NITRO-GEN, AMMONIA TOTAL (MG/L AS N) | NITRO-GEN, ORGANIC TOTAL (MG/L AS N) |
|-----------|-----------------------------------|-----------------------------------|---|-----------------------------------|--|--------------------------------------|--------------------------------------|--------------------------------------|--------------------------------------|--------------------------------------|
| OCT 1992 | | | | | | | | | | |
| 21... | 0.40 | 21 | 398 | 9.02 | <10 | 0.760 | 0.120 | 0.880 | 0.430 | 1.3 |
| DEC 16... | -- | -- | -- | -- | 41 | 0.330 | 0.070 | 0.400 | 0.140 | 0.36 |
| FEB 1993 | | | | | | | | | | |
| 16... | -- | -- | -- | -- | 592 | 0.370 | 0.030 | 0.400 | 0.070 | 0.33 |
| APR 15... | 0.20 | 25 | 291 | 3.70 | 32 | 0.450 | 0.050 | 0.500 | 0.140 | 0.46 |
| JUN 08... | -- | -- | -- | -- | 6010 | 0.600 | 0.100 | 0.700 | 0.410 | 0.59 |
| AUG 09... | 0.10 | 22 | 253 | 3.96 | 46 | 0.260 | 0.040 | 0.300 | 0.130 | 0.37 |

K = non-ideal count

RIO GRANDE DE LOIZA BASIN

50050900 RIO GRANDE DE LOIZA AT QUEBRADA ARENAS, PR

LOCATION.--Lat 18°07'10", long 65°59'22", Hydrologic Unit 21010005, at intersection of Highways 181 and 9990, 0.2 mi (0.3 km) upstream from confluence with Río Emajagua and about 7.1 mi (11.4 km) southwest of San Lorenzo.

DRAINAGE AREA.--6.00 mi² (15.54 km²).

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--October 1977 to current year.

GAGE.--Water-stage recorder. Elevation of gage is 640 ft (195 m), from topographic map.

REMARKS.--Records fair except those for estimated daily discharges, which are poor. Gage-height and precipitation satellite telemetry at station.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993
DAILY MEAN VALUES

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|-------|-------|-------|------|------|-------|-------|-------|--------|--------|-------|------|------|
| 1 | e10 | e12 | e37 | e40 | e15 | e9.4 | 6.4 | 202 | 12 | 15 | 30 | 23 |
| 2 | e9.2 | e9.7 | e22 | e25 | e18 | e8.4 | 6.2 | 178 | 11 | 16 | 27 | 28 |
| 3 | e9.0 | e10 | e90 | e22 | e15 | e7.9 | 6.0 | 49 | 9.8 | 32 | 24 | 28 |
| 4 | e8.4 | e61 | e30 | e21 | e13 | e7.5 | 5.8 | 24 | 9.1 | 17 | 22 | 18 |
| 5 | e10 | e19 | e21 | e17 | e13 | e7.5 | 5.8 | 60 | 8.7 | 13 | 21 | 17 |
| 6 | e14 | e58 | e22 | e24 | e13 | e7.4 | 5.7 | 27 | 8.3 | 11 | 20 | 15 |
| 7 | e9.0 | e33 | e19 | e27 | e12 | e7.5 | 5.2 | 15 | 8.0 | 32 | 19 | 15 |
| 8 | e8.8 | e16 | e18 | e23 | e12 | e7.2 | 6.4 | 17 | 8.7 | 25 | 19 | 25 |
| 9 | e8.5 | e12 | e17 | e21 | e11 | e7.2 | 8.3 | 107 | 8.0 | 14 | 18 | 24 |
| 10 | e8.3 | e11 | e16 | e20 | e12 | e7.0 | 6.4 | 32 | 19 | 12 | 20 | 63 |
| 11 | e8.9 | e9.9 | e15 | e18 | e14 | e7.0 | 5.2 | 18 | 11 | e946 | 37 | 26 |
| 12 | e8.4 | e9.6 | e15 | e18 | e17 | e7.4 | 5.1 | 14 | 9.0 | e120 | 20 | 18 |
| 13 | e7.6 | e9.2 | e16 | e17 | e14 | e7.8 | 13 | 12 | 15 | 62 | 18 | 17 |
| 14 | e7.8 | e8.5 | e17 | e18 | e12 | e7.6 | 10 | 299 | 98 | 50 | 17 | 15 |
| 15 | e7.4 | e13 | e18 | e16 | e11 | e7.8 | 6.3 | 40 | 137 | 43 | 22 | 14 |
| 16 | e7.5 | e10 | e15 | e15 | e11 | e7.2 | 19 | 24 | 40 | 192 | 302 | 48 |
| 17 | e8.1 | e25 | e15 | e15 | e11 | e8.2 | 30 | 19 | 18 | 47 | 54 | 18 |
| 18 | e9.4 | e81 | e14 | e14 | e10 | e8.6 | 7.1 | 17 | 248 | 38 | 30 | 57 |
| 19 | e7.6 | e44 | e14 | e16 | e11 | e10 | 6.6 | 15 | 498 | 46 | 25 | 17 |
| 20 | e26 | e42 | e14 | e13 | e11 | e9.4 | 18 | 15 | 155 | 59 | 22 | 40 |
| 21 | e23 | e17 | e15 | e13 | e10 | e8.0 | 9.1 | 14 | 41 | 53 | 20 | 16 |
| 22 | e17 | e32 | e16 | e23 | e10 | e7.0 | 6.5 | 14 | 205 | 235 | 70 | 18 |
| 23 | e11 | e17 | e14 | e15 | e10 | e6.8 | 33 | 14 | 46 | 215 | 139 | 335 |
| 24 | e9.8 | e54 | e15 | e27 | e10 | 6.9 | 8.4 | 12 | 35 | 215 | 70 | 40 |
| 25 | e60 | e16 | e22 | e20 | e9.0 | 8.2 | 6.8 | 16 | 24 | 85 | 33 | 20 |
| 26 | e71 | e13 | e34 | e18 | e9.0 | 9.6 | 6.5 | 13 | 20 | 69 | 27 | 16 |
| 27 | e14 | e38 | e21 | e27 | e9.2 | 7.6 | 9.1 | 12 | 17 | 53 | 23 | 15 |
| 28 | e11 | e121 | e16 | e54 | e9.2 | 6.7 | 5.9 | 11 | 15 | 43 | 23 | 19 |
| 29 | e22 | e33 | e30 | e28 | --- | 6.3 | 185 | 10 | 18 | 38 | 20 | 153 |
| 30 | e16 | e55 | e25 | e17 | --- | 6.0 | 30 | 9.8 | 32 | 34 | 19 | 110 |
| 31 | e16 | --- | e30 | e15 | --- | 5.8 | --- | 9.5 | --- | 32 | 32 | --- |
| TOTAL | 464.7 | 889.9 | 683 | 657 | 332.4 | 236.9 | 482.8 | 1319.3 | 1784.6 | 2862 | 1243 | 1268 |
| MEAN | 15.0 | 29.7 | 22.0 | 21.2 | 11.9 | 7.64 | 16.1 | 42.6 | 59.5 | 92.3 | 40.1 | 42.3 |
| MAX | 71 | 121 | 90 | 54 | 18 | 10 | 185 | 299 | 498 | 946 | 302 | 335 |
| MIN | 7.4 | 8.5 | 14 | 13 | 9.0 | 5.8 | 5.1 | 9.5 | 8.0 | 11 | 17 | 14 |
| AC-FT | 922 | 1770 | 1350 | 1300 | 659 | 470 | 958 | 2620 | 3540 | 5680 | 2470 | 2520 |
| CFSM | 2.50 | 4.94 | 3.67 | 3.53 | 1.98 | 1.27 | 2.68 | 7.09 | 9.91 | 15.4 | 6.68 | 7.04 |
| IN. | 2.88 | 5.52 | 4.23 | 4.07 | 2.06 | 1.47 | 2.99 | 8.18 | 11.06 | 17.74 | 7.71 | 7.86 |

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1978 - 1993, BY WATER YEAR (WY)

| | MEAN | 41.8 | 47.3 | 24.5 | 18.5 | 16.5 | 12.4 | 13.3 | 34.7 | 39.3 | 38.2 | 30.5 | 36.1 |
|------|------|------|------|------|------|------|------|------|------|------|------|------|------|
| MAX | 123 | 122 | 55.2 | 56.1 | 38.0 | 33.1 | 27.1 | 77.5 | 122 | 92.3 | 90.0 | 94.3 | |
| (WY) | 1986 | 1988 | 1988 | 1992 | 1982 | 1989 | 1985 | 1985 | 1979 | 1993 | 1979 | 1979 | |
| MIN | 13.1 | 8.34 | 6.65 | 8.16 | 6.36 | 5.07 | 4.64 | 9.56 | 11.3 | 12.5 | 9.30 | 11.8 | |
| (WY) | 1990 | 1990 | 1990 | 1990 | 1979 | 1979 | 1979 | 1988 | 1985 | 1986 | 1991 | 1981 | |

SUMMARY STATISTICS

FOR 1992 CALENDAR YEAR

FOR 1993 WATER YEAR

WATER YEARS 1978 - 1993

| | | | |
|--------------------------|--------|---------|-------|
| ANNUAL TOTAL | 9358.5 | 12223.6 | |
| ANNUAL MEAN | 25.6 | 33.5 | 29.5 |
| HIGHEST ANNUAL MEAN | | | 49.6 |
| LOWEST ANNUAL MEAN | | | 14.5 |
| HIGHEST DAILY MEAN | 1000 | Jan 5 | 1250 |
| LOWEST DAILY MEAN | 5.0 | Apr 28 | 3.1 |
| ANNUAL SEVEN-DAY MINIMUM | 5.4 | Apr 25 | 3.6 |
| INSTANTANEOUS PEAK FLOW | | | 7260 |
| INSTANTANEOUS PEAK STAGE | | | 12.40 |
| INSTANTANEOUS LOW FLOW | | | 4.9 |
| ANNUAL RUNOFF (AC-FT) | 18560 | 24250 | 21340 |
| ANNUAL RUNOFF (CFSM) | 4.26 | 5.58 | 4.91 |
| ANNUAL RUNOFF (INCHES) | 58.02 | 75.79 | 66.71 |
| 10 PERCENT EXCEEDS | 44 | 58 | 50 |
| 50 PERCENT EXCEEDS | 14 | 16 | 15 |
| 90 PERCENT EXCEEDS | 6.6 | 7.5 | 6.9 |

e Estimated

RIO GRANDE DE LOIZA BASIN

195

50051150 QUEBRADA BLANCA AT EL JAGUAL, PR

LOCATION.--Lat 18°09'40", long 65°58'58", Hydrologic Unit 21010005, 0.1 mi (0.2 km) upstream from bridge on Highway 181, and 2.8 mi (4.5 km) southwest of San Lorenzo.

DRAINAGE AREA.--3.25 mi² (8.42 km²).

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--October 1984 to current year.

GAGE.--Water-stage recorder and crest-stage gage. Elevation of gage is 459 ft (140 m), from topographic map.

REMARKS.--Records fair except those for estimated daily discharges, which are poor. Gage-height and precipitation satellite telemetry at station.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993
DAILY MEAN VALUES

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|-------|------|-------|-------|-------|-------|-------|------|-------|-------|-------|-------|-------|
| 1 | 2.5 | 1.6 | 20 | 20 | 4.5 | 1.6 | 1.1 | 12 | 3.0 | 1.9 | 4.1 | 3.2 |
| 2 | 2.4 | 1.6 | 15 | 11 | 6.3 | 1.6 | 1.1 | 16 | 2.6 | 2.1 | 3.5 | 2.7 |
| 3 | 2.4 | 1.9 | 11 | 9.2 | 5.0 | 1.9 | 1.2 | 8.4 | 2.2 | 6.0 | 3.0 | 3.1 |
| 4 | 2.0 | 6.7 | 8.7 | 7.8 | 4.4 | 1.8 | 1.1 | 3.5 | 1.9 | 2.7 | 2.9 | 2.6 |
| 5 | 1.7 | 3.0 | 7.2 | 5.8 | 4.3 | 1.8 | 1.1 | 3.3 | 1.7 | 1.9 | 2.9 | 3.3 |
| 6 | 14 | 8.0 | 6.0 | 5.0 | 4.2 | 1.8 | 1.1 | 2.4 | 1.6 | 1.6 | 2.7 | 2.4 |
| 7 | 7.6 | 7.0 | 5.1 | 7.7 | 4.2 | 1.7 | 1.1 | 1.9 | 1.5 | 1.7 | 2.4 | 2.3 |
| 8 | 4.0 | 3.3 | 4.5 | 5.8 | 4.0 | 1.6 | 1.9 | 2.0 | 1.6 | 3.3 | 2.9 | 2.9 |
| 9 | 3.3 | 2.6 | 4.1 | 7.6 | 3.9 | 1.6 | 1.9 | 8.4 | 2.6 | 1.7 | 3.0 | 3.2 |
| 10 | 2.7 | 3.1 | 3.8 | 5.1 | 3.9 | 1.8 | 1.5 | 4.7 | 4.7 | 1.6 | 3.9 | 11 |
| 11 | 2.3 | 2.2 | 3.6 | 4.1 | 4.4 | 1.7 | 1.3 | 3.4 | 2.8 | e213 | 3.4 | 5.0 |
| 12 | 1.9 | 2.0 | 3.4 | 3.8 | 4.9 | 1.7 | 1.3 | 2.4 | 2.1 | e18 | 3.5 | 3.3 |
| 13 | 1.7 | 1.9 | 3.4 | 3.4 | 5.2 | 1.9 | 1.7 | 1.9 | 2.5 | 10 | 3.2 | 2.9 |
| 14 | 1.8 | 1.8 | 5.8 | 7.0 | 4.1 | 1.8 | 2.1 | 19 | 17 | 6.7 | 2.8 | 2.8 |
| 15 | 1.7 | 7.4 | 5.3 | 4.0 | 3.7 | 2.1 | 1.5 | 9.3 | 11 | 5.3 | 4.7 | 2.7 |
| 16 | 1.8 | 3.7 | 3.6 | 3.8 | 3.5 | 1.8 | 1.6 | 4.4 | 5.0 | 7.5 | 78 | 6.3 |
| 17 | 1.9 | 3.7 | 3.3 | 3.7 | 3.4 | 2.4 | 1.3 | 2.9 | 2.2 | 4.7 | 16 | 3.3 |
| 18 | 1.9 | 14 | 3.2 | 3.3 | 3.4 | 2.1 | 1.1 | 2.2 | 13 | 4.2 | 9.3 | 5.3 |
| 19 | 1.9 | 10 | 3.1 | 3.5 | 3.3 | 2.4 | 1.3 | 1.7 | 48 | 4.0 | 7.1 | 3.2 |
| 20 | 2.3 | 6.7 | 3.2 | 3.4 | 3.3 | 1.9 | 1.3 | 1.7 | 26 | 3.9 | 5.7 | 3.0 |
| 21 | 1.9 | 5.5 | 3.0 | 3.3 | 3.1 | 1.7 | 1.4 | 1.5 | 11 | 3.4 | 4.9 | 2.4 |
| 22 | 1.7 | 4.8 | 5.3 | 3.6 | 2.9 | 1.4 | 1.1 | 1.3 | 10 | 36 | 4.9 | 2.1 |
| 23 | 2.0 | 3.5 | 3.6 | 3.9 | 2.4 | 1.3 | 1.1 | 1.4 | 6.3 | 32 | 9.1 | 8.2 |
| 24 | 3.0 | 2.9 | 3.4 | 3.7 | 2.4 | 1.3 | 1.1 | 1.3 | 6.0 | 22 | 4.8 | 4.7 |
| 25 | 3.2 | 2.4 | 5.1 | 4.2 | 2.0 | 1.4 | 1.0 | 1.7 | 3.7 | 12 | 4.2 | 2.8 |
| 26 | 3.0 | 2.2 | 20 | 4.0 | 2.0 | 1.4 | 1.3 | 6.8 | 2.8 | 17 | 3.7 | 2.3 |
| 27 | 2.0 | 11 | 7.9 | 5.4 | 2.2 | 1.3 | 2.3 | 8.4 | 2.2 | 16 | 3.2 | 1.9 |
| 28 | 1.8 | 34 | 5.1 | 6.5 | 1.9 | 1.1 | 1.5 | 5.3 | 1.9 | 8.5 | 2.8 | 2.0 |
| 29 | 1.7 | 10 | 9.6 | 11 | --- | 1.0 | 6.8 | 3.5 | 2.1 | 6.5 | 2.6 | 3.2 |
| 30 | 1.7 | 24 | 6.4 | 5.9 | --- | .99 | 10 | 2.9 | 2.7 | 5.2 | 2.5 | 5.9 |
| 31 | 1.6 | --- | 13 | 4.9 | --- | 1.0 | --- | 2.6 | --- | 4.7 | 3.8 | --- |
| TOTAL | 85.4 | 192.5 | 205.7 | 181.4 | 102.8 | 50.89 | 55.2 | 148.2 | 201.7 | 465.1 | 211.5 | 110.0 |
| MEAN | 2.75 | 6.42 | 6.64 | 5.85 | 3.67 | 1.64 | 1.84 | 4.78 | 6.72 | 15.0 | 6.82 | 3.67 |
| MAX | 14 | 34 | 20 | 20 | 6.3 | 2.4 | 10 | 19 | 48 | 213 | 78 | 11 |
| MIN | 1.6 | 1.6 | 3.0 | 3.3 | 1.9 | .99 | 1.0 | 1.3 | 1.5 | 1.6 | 2.4 | 1.9 |
| AC-FT | 169 | 382 | 408 | 360 | 204 | 101 | 109 | 294 | 400 | 923 | 420 | 218 |
| CFSM | .85 | 1.97 | 2.04 | 1.80 | 1.13 | .51 | .57 | 1.47 | 2.07 | 4.62 | 2.10 | 1.13 |
| IN. | .98 | 2.20 | 2.35 | 2.08 | 1.18 | .58 | .63 | 1.70 | 2.31 | 5.32 | 2.42 | 1.26 |

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1984 - 1993, BY WATER YEAR (WY)

| | MEAN | 11.8 | 18.2 | 7.76 | 4.94 | 4.00 | 4.31 | 2.45 | 8.90 | 6.26 | 6.14 | 6.48 | 7.23 |
|------|------|------|------|------|------|------|------|------|------|------|------|------|------|
| MAX | 47.8 | 36.9 | 30.1 | 9.94 | 8.21 | 20.7 | 4.88 | 31.5 | 21.3 | 15.0 | 20.2 | 14.3 | 14.3 |
| (WY) | 1986 | 1985 | 1988 | 1992 | 1989 | 1989 | 1989 | 1985 | 1987 | 1993 | 1988 | 1985 | 1985 |
| MIN | 2.75 | 2.49 | 1.49 | 1.79 | 1.32 | 1.64 | .90 | 1.51 | 2.40 | 2.02 | 2.21 | 1.36 | 1.36 |
| (WY) | 1993 | 1990 | 1990 | 1990 | 1985 | 1993 | 1991 | 1990 | 1991 | 1986 | 1985 | 1990 | 1990 |

SUMMARY STATISTICS

FOR 1992 CALENDAR YEAR

FOR 1993 WATER YEAR

WATER YEARS 1984 - 1993

| | | | |
|--------------------------|---------|---------|-------|
| ANNUAL TOTAL | 2121.88 | 2010.39 | |
| ANNUAL MEAN | 5.80 | 5.51 | 7.39 |
| HIGHEST ANNUAL MEAN | | | 12.3 |
| LOWEST ANNUAL MEAN | | | 2.50 |
| HIGHEST DAILY MEAN | 194 | Jan 5 | 457 |
| LOWEST DAILY MEAN | .72 | Jan 4 | .38 |
| ANNUAL SEVEN-DAY MINIMUM | 1.1 | Mar 24 | .42 |
| INSTANTANEOUS PEAK FLOW | | | 3730 |
| INSTANTANEOUS PEAK STAGE | | | 11.20 |
| ANNUAL RUNOFF (AC-FT) | 4210 | 3990 | 5360 |
| ANNUAL RUNOFF (CFSM) | 1.78 | 1.69 | 2.27 |
| ANNUAL RUNOFF (INCHES) | 24.29 | 23.01 | 30.90 |
| 10 PERCENT EXCEEDS | 11 | 10 | 12 |
| 50 PERCENT EXCEEDS | 2.7 | 3.2 | 2.6 |
| 90 PERCENT EXCEEDS | 1.4 | 1.5 | 1.1 |

e Estimated

RIO GRANDE DE LOIZA BASIN

50051150 QUEBRADA BLANCA AT EL JAGUAL, PR--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORDS.-- Water years 1985 to 1986 and water year 1989 to current year.

PERIOD OF DAILY RECORD.--

SUSPENDED-SEDIMENT DISCHARGE: October 1984 to September 1986 and from October 1989 to September 1993.

INSTRUMENTATION.--

EXTREMES FOR PERIOD OF DAILY RECORD.--

SEDIMENT CONCENTRATION: Maximum daily mean, 7,300 mg/L Oct. 06, 1985; Minimum daily mean, 1 mg/L several days.

SEDIMENT LOADS: Maximum daily mean, 4,940 tons (23,400 tonnes) May 17, 1985; Minimum daily mean, 0.0 ton (0.0 tonne) several days.

EXTREMES FOR WATER YEAR 1993.--

SEDIMENT CONCENTRATION: Maximum daily mean, 1,150 mg/L Nov. 08, 1991; Minimum daily mean, 1 mg/L several days.

SEDIMENT LOADS: Maximum daily mean, e2,860 tons (e2,580 tonnes) July 11, 1993; Minimum daily mean, <.01 ton several days.

SEDIMENT DISCHARGE, SUSPENDED (TONS/DAY), WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993

| DAY | MEAN DISCHARGE (CFS) | MEAN CONCENTRATION (MG/L) | SEDIMENT DISCHARGE (TONS/DAY) | MEAN DISCHARGE (CFS) | MEAN CONCENTRATION (MG/L) | SEDIMENT DISCHARGE (TONS/DAY) | MEAN DISCHARGE (CFS) | MEAN CONCENTRATION (MG/L) | SEDIMENT DISCHARGE (TONS/DAY) |
|---------|----------------------------|---------------------------------|-------------------------------------|----------------------------|---------------------------------|-------------------------------------|----------------------------|---------------------------------|-------------------------------------|
| OCTOBER | | | NOVEMBER | | | DECEMBER | | | |
| 1 | 2.5 | 3 | .02 | 1.6 | 5 | .03 | 20 | 134 | 14 |
| 2 | 2.4 | 3 | .02 | 1.6 | 8 | .04 | 15 | 22 | .96 |
| 3 | 2.4 | 3 | .02 | 1.9 | 9 | .05 | 11 | 12 | .34 |
| 4 | 2.0 | 18 | .12 | 6.7 | 18 | .42 | 8.7 | 13 | .29 |
| 5 | 1.7 | 3 | .02 | 3.0 | 7 | .07 | 7.2 | 11 | .22 |
| 6 | 14 | 100 | 16 | 8.0 | 29 | 1.4 | 6.0 | 9 | .15 |
| 7 | 7.6 | 13 | .36 | 7.0 | 20 | .63 | 5.1 | 6 | .09 |
| 8 | 4.0 | 2 | .02 | 3.3 | 5 | .05 | 4.5 | 5 | .06 |
| 9 | 3.3 | 1 | .01 | 2.6 | 4 | .03 | 4.1 | 5 | .06 |
| 10 | 2.7 | 1 | .01 | 3.1 | 3 | .03 | 3.8 | 5 | .05 |
| 11 | 2.3 | 2 | .02 | 2.2 | 3 | .02 | 3.6 | 4 | .04 |
| 12 | 1.9 | 2 | .01 | 2.0 | 3 | .02 | 3.4 | 3 | .03 |
| 13 | 1.7 | 3 | .01 | 1.9 | 3 | .02 | 3.4 | 2 | .02 |
| 14 | 1.8 | 3 | .01 | 1.8 | 4 | .02 | 5.8 | 16 | .73 |
| 15 | 1.7 | 3 | .01 | 7.4 | 37 | 2.1 | 5.3 | 19 | .36 |
| 16 | 1.8 | 4 | .02 | 3.7 | 8 | .09 | 3.6 | 3 | .03 |
| 17 | 1.9 | 3 | .02 | 3.7 | 13 | .16 | 3.3 | 2 | .01 |
| 18 | 1.9 | 2 | .02 | 14 | 85 | 8.6 | 3.2 | 3 | .02 |
| 19 | 1.9 | 1 | .01 | 10 | 34 | 1.2 | 3.1 | 3 | .02 |
| 20 | 2.3 | 1 | .00 | 6.7 | 15 | .34 | 3.2 | 3 | .02 |
| 21 | 1.9 | 1 | .00 | 5.5 | 8 | .13 | 3.0 | 3 | .02 |
| 22 | 1.7 | 2 | .01 | 4.8 | 7 | .10 | 5.3 | 17 | .30 |
| 23 | 2.0 | 4 | .02 | 3.5 | 7 | .07 | 3.6 | 23 | .24 |
| 24 | 3.0 | 6 | .06 | 2.9 | 5 | .04 | 3.4 | 15 | .14 |
| 25 | 3.2 | 4 | .03 | 2.4 | 2 | .02 | 5.1 | 12 | .18 |
| 26 | 3.0 | 4 | .04 | 2.2 | 2 | .02 | 20 | 73 | 7.3 |
| 27 | 2.0 | 3 | .02 | 11 | 67 | 6.1 | 7.9 | 25 | .60 |
| 28 | 1.8 | 3 | .02 | 34 | 566 | 131 | 5.1 | 11 | .16 |
| 29 | 1.7 | 3 | .02 | 10 | 38 | 2.9 | 9.6 | 31 | 1.1 |
| 30 | 1.7 | 2 | .01 | 24 | 107 | 12 | 6.4 | 15 | .25 |
| 31 | 1.6 | 3 | .01 | --- | --- | --- | 13 | 54 | 4.0 |
| TOTAL | 85.4 | --- | 16.97 | 192.5 | --- | 167.70 | 205.7 | --- | 31.79 |

RIO GRANDE DE LOIZA BASIN

50051150 QUEBRADA BLANCA AT EL JAGUAL, PR--Continued

SEDIMENT DISCHARGE, SUSPENDED (TONS/DAY), WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993

| DAY | MEAN DISCHARGE (CFS) | MEAN CONCEN- TRATION (MG/L) | SEDIMENT DISCHARGE (TONS/DAY) | MEAN DISCHARGE (CFS) | MEAN CONCEN- TRATION (MG/L) | SEDIMENT DISCHARGE (TONS/DAY) | MEAN DISCHARGE (CFS) | MEAN CONCEN- TRATION (MG/L) | SEDIMENT DISCHARGE (TONS/DAY) |
|---------|----------------------------|--------------------------------------|-------------------------------------|----------------------------|--------------------------------------|-------------------------------------|----------------------------|--------------------------------------|-------------------------------------|
| JANUARY | | | FEBRUARY | | | MARCH | | | |
| 1 | 20 | 66 | 5.8 | 4.5 | 7 | .09 | 1.6 | 7 | .04 |
| 2 | 11 | 7 | .21 | 6.3 | 15 | .39 | 1.6 | 7 | .04 |
| 3 | 9.2 | 6 | .15 | 5.0 | 8 | .12 | 1.9 | 7 | .04 |
| 4 | 7.8 | 7 | .15 | 4.4 | 5 | .06 | 1.8 | 5 | .02 |
| 5 | 5.8 | 13 | .20 | 4.3 | 5 | .06 | 1.8 | 5 | .02 |
| 6 | 5.0 | 17 | .23 | 4.2 | 7 | .08 | 1.8 | 5 | .02 |
| 7 | 7.7 | 30 | .92 | 4.2 | 8 | .10 | 1.7 | 7 | .03 |
| 8 | 5.8 | 24 | .44 | 4.0 | 9 | .10 | 1.6 | 9 | .04 |
| 9 | 7.6 | 23 | .66 | 3.9 | 7 | .08 | 1.6 | 12 | .05 |
| 10 | 5.1 | 8 | .12 | 3.9 | 5 | .06 | 1.8 | 13 | .06 |
| 11 | 4.1 | 4 | .06 | 4.4 | 6 | .08 | 1.7 | 11 | .05 |
| 12 | 3.8 | 3 | .03 | 4.9 | 8 | .11 | 1.7 | 6 | .03 |
| 13 | 3.4 | 3 | .02 | 5.2 | 7 | .10 | 1.9 | 3 | .02 |
| 14 | 7.0 | 19 | .61 | 4.1 | 7 | .07 | 1.8 | 2 | .01 |
| 15 | 4.0 | 7 | .08 | 3.7 | 6 | .06 | 2.1 | 2 | .01 |
| 16 | 3.8 | 5 | .05 | 3.5 | 5 | .05 | 1.8 | 1 | <.01 |
| 17 | 3.7 | 5 | .05 | 3.4 | 4 | .04 | 2.4 | 1 | <.01 |
| 18 | 3.3 | 5 | .04 | 3.4 | 6 | .05 | 2.1 | 2 | .01 |
| 19 | 3.5 | 5 | .05 | 3.3 | 7 | .07 | 2.4 | 4 | .02 |
| 20 | 3.4 | 5 | .05 | 3.3 | 7 | .07 | 1.9 | 4 | .02 |
| 21 | 3.3 | 5 | .04 | 3.1 | 5 | .05 | 1.7 | 5 | .02 |
| 22 | 3.6 | 4 | .04 | 2.9 | 5 | .04 | 1.4 | 4 | .02 |
| 23 | 3.9 | 2 | .03 | 2.4 | 6 | .04 | 1.3 | 4 | .02 |
| 24 | 3.7 | 1 | .02 | 2.4 | 8 | .05 | 1.3 | 4 | .02 |
| 25 | 4.2 | 1 | .02 | 2.0 | 9 | .05 | 1.4 | 5 | .02 |
| 26 | 4.0 | 3 | .03 | 2.0 | 8 | .04 | 1.4 | 5 | .02 |
| 27 | 5.4 | 6 | .09 | 2.2 | 8 | .04 | 1.3 | 3 | .01 |
| 28 | 6.5 | 9 | .15 | 1.9 | 7 | .04 | 1.1 | 2 | <.01 |
| 29 | 11 | 42 | 2.0 | --- | --- | --- | 1.0 | 2 | <.01 |
| 30 | 5.9 | 16 | .27 | --- | --- | --- | .99 | 2 | <.01 |
| 31 | 4.9 | 10 | .14 | --- | --- | --- | 1.0 | 2 | <.01 |
| TOTAL | 181.4 | --- | 12.75 | 102.8 | --- | 2.19 | 50.89 | --- | 0.66 |

RIO GRANDE DE LOIZA BASIN

50051150 QUEBRADA BLANCA AT EL JAGUAL, PR--Continued

SEDIMENT DISCHARGE, SUSPENDED (TONS/DAY), WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993

| DAY | MEAN DISCHARGE (CFS) | MEAN CONCEN- TRATION (MG/L) | SEDIMENT DISCHARGE (TONS/DAY) | MEAN DISCHARGE (CFS) | MEAN CONCEN- TRATION (MG/L) | SEDIMENT DISCHARGE (TONS/DAY) | MEAN DISCHARGE (CFS) | MEAN CONCEN- TRATION (MG/L) | SEDIMENT DISCHARGE (TONS/DAY) |
|-------|----------------------------|--------------------------------------|-------------------------------------|----------------------------|--------------------------------------|-------------------------------------|----------------------------|--------------------------------------|-------------------------------------|
| APRIL | | | MAY | | | JUNE | | | |
| 1 | 1.1 | 1 | <.01 | 12 | 48 | 2.3 | 3.0 | 4 | .04 |
| 2 | 1.1 | 1 | <.01 | 16 | 84 | 7.5 | 2.6 | 5 | .04 |
| 3 | 1.2 | 1 | <.01 | 8.4 | 20 | .55 | 2.2 | 5 | .04 |
| 4 | 1.1 | 1 | <.01 | 3.5 | 10 | .10 | 1.9 | 4 | .02 |
| 5 | 1.1 | 3 | .01 | 3.3 | 6 | .05 | 1.7 | 4 | .02 |
| 6 | 1.1 | 3 | .01 | 2.4 | 4 | .03 | 1.6 | 4 | .02 |
| 7 | 1.1 | 3 | .01 | 1.9 | 2 | .01 | 1.5 | 4 | .02 |
| 8 | 1.9 | 3 | .01 | 2.0 | 3 | .01 | 1.6 | 4 | .02 |
| 9 | 1.9 | 3 | .02 | 8.4 | 21 | .57 | 2.6 | 6 | .06 |
| 10 | 1.5 | 3 | .02 | 4.7 | 8 | .12 | 4.7 | 10 | .16 |
| 11 | 1.3 | 4 | .02 | 3.4 | 3 | .03 | 2.8 | 4 | .04 |
| 12 | 1.3 | 5 | .02 | 2.4 | 2 | .02 | 2.1 | 2 | .02 |
| 13 | 1.7 | 4 | .02 | 1.9 | 2 | .02 | 2.5 | 3 | .02 |
| 14 | 2.1 | 2 | .01 | 19 | 133 | 15 | 17 | 100 | 11 |
| 15 | 1.5 | 2 | <.01 | 9.3 | 28 | .86 | 11 | 38 | 1.5 |
| 16 | 1.6 | 2 | .01 | 4.4 | 10 | .13 | 5.0 | 12 | .19 |
| 17 | 1.3 | 3 | .02 | 2.9 | 5 | .04 | 2.2 | 8 | .06 |
| 18 | 1.1 | 3 | .01 | 2.2 | 2 | .01 | 13 | 91 | 84 |
| 19 | 1.3 | 3 | .01 | 1.7 | 2 | <.01 | 48 | 314 | 43 |
| 20 | 1.3 | 2 | .01 | 1.7 | 2 | <.01 | 26 | 126 | 12 |
| 21 | 1.4 | 2 | <.01 | 1.5 | 2 | .01 | 11 | 23 | .81 |
| 22 | 1.1 | 3 | <.01 | 1.3 | 3 | .02 | 10 | 10 | .24 |
| 23 | 1.1 | 3 | .01 | 1.4 | 4 | .02 | 6.3 | 8 | .15 |
| 24 | 1.1 | 4 | .02 | 1.3 | 5 | .02 | 6.0 | 8 | .12 |
| 25 | 1.0 | 5 | .02 | 1.7 | 5 | .03 | 3.7 | 6 | .07 |
| 26 | 1.3 | 6 | .03 | 6.8 | 26 | 1.1 | 2.8 | 3 | .03 |
| 27 | 2.3 | 3 | .02 | 8.4 | 28 | 1.1 | 2.2 | 3 | .02 |
| 28 | 1.5 | 2 | <.01 | 5.3 | 15 | .27 | 1.9 | 3 | .02 |
| 29 | 6.8 | 27 | 1.3 | 3.5 | 8 | .07 | 2.1 | 5 | .03 |
| 30 | 10 | 45 | 2.6 | 2.9 | 6 | .05 | 2.7 | 4 | .04 |
| 31 | --- | --- | --- | 2.6 | 4 | .03 | --- | --- | --- |
| TOTAL | 55.2 | --- | 4.21 | 148.2 | --- | 30.07 | 201.7 | --- | 153.80 |

50051150 QUEBRADA BLANCA AT EL JAGUAL, PR--Continued

SEDIMENT DISCHARGE, SUSPENDED (TONS/DAY), WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993

| DAY | MEAN DISCHARGE (CFS) | MEAN CONCEN- TRATION (MG/L) | SEDIMENT DISCHARGE (TONS/DAY) | MEAN DISCHARGE (CFS) | MEAN CONCEN- TRATION (MG/L) | SEDIMENT DISCHARGE (TONS/DAY) | MEAN DISCHARGE (CFS) | MEAN CONCEN- TRATION (MG/L) | SEDIMENT DISCHARGE (TONS/DAY) |
|-------|----------------------------|--------------------------------------|-------------------------------------|----------------------------|--------------------------------------|-------------------------------------|----------------------------|--------------------------------------|-------------------------------------|
| JULY | | | AUGUST | | | SEPTEMBER | | | |
| 1 | 1.9 | 2 | .01 | 4.1 | 5 | .05 | 3.2 | 7 | .06 |
| 2 | 2.1 | 2 | .01 | 3.5 | 5 | .04 | 2.7 | 2 | .02 |
| 3 | 6.0 | 15 | .37 | 3.0 | 10 | .07 | 3.1 | 2 | .02 |
| 4 | 2.7 | 8 | .06 | 2.9 | 12 | .09 | 2.6 | 2 | .02 |
| 5 | 1.9 | 10 | .05 | 2.9 | 10 | .08 | 3.3 | 3 | .02 |
| 6 | 1.6 | 6 | .03 | 2.7 | 5 | .04 | 2.4 | 2 | .02 |
| 7 | 1.7 | 2 | .02 | 2.4 | 2 | .02 | 2.3 | 2 | .02 |
| 8 | 3.3 | 6 | .08 | 2.9 | 7 | .06 | 2.9 | 3 | .03 |
| 9 | 1.7 | 2 | .01 | 3.0 | 8 | .07 | 3.2 | 6 | .05 |
| 10 | 1.6 | 2 | <.01 | 3.9 | 7 | .07 | 11 | 37 | 1.4 |
| 11 | e213 | 1150 | e2860 | 3.4 | 8 | .07 | 5.0 | 10 | .16 |
| 12 | e18 | 68 | e5.3 | 3.5 | 7 | .07 | 3.3 | 7 | .06 |
| 13 | 10 | 10 | .28 | 3.2 | 7 | .06 | 2.9 | 11 | .08 |
| 14 | 6.7 | 8 | .15 | 2.8 | 6 | .05 | 2.8 | 12 | .08 |
| 15 | 5.3 | 8 | .12 | 4.7 | 13 | .36 | 2.7 | 12 | .10 |
| 16 | 7.5 | 16 | .43 | 78 | 812 | 289 | 6.3 | 17 | .43 |
| 17 | 4.7 | 8 | .11 | 16 | 46 | 2.4 | 3.3 | 6 | .06 |
| 18 | 4.2 | 8 | .10 | 9.3 | 7 | .19 | 5.3 | 14 | .44 |
| 19 | 4.0 | 7 | .08 | 7.1 | 3 | .06 | 3.2 | 6 | .06 |
| 20 | 3.9 | 6 | .07 | 5.7 | 3 | .05 | 3.0 | 2 | .01 |
| 21 | 3.4 | 6 | .06 | 4.9 | 8 | .10 | 2.4 | 2 | .02 |
| 22 | 36 | 188 | 131 | 4.9 | 8 | .10 | 2.1 | 2 | .02 |
| 23 | 32 | 185 | 30 | 9.1 | 18 | .60 | 8.2 | 39 | 3.7 |
| 24 | 22 | 102 | 10 | 4.8 | 3 | .05 | 4.7 | 20 | .29 |
| 25 | 12 | 28 | .96 | 4.2 | 3 | .04 | 2.8 | 15 | .12 |
| 26 | 17 | 60 | 7.0 | 3.7 | 3 | .03 | 2.3 | 10 | .06 |
| 27 | 16 | 67 | 5.0 | 3.2 | 5 | .04 | 1.9 | 5 | .02 |
| 28 | 8.5 | 12 | .27 | 2.8 | 9 | .06 | 2.0 | 2 | .01 |
| 29 | 6.5 | 8 | .14 | 2.6 | 10 | .06 | 3.2 | 5 | .06 |
| 30 | 5.2 | 6 | .09 | 2.5 | 10 | .07 | 5.9 | 13 | .29 |
| 31 | 4.7 | 6 | .08 | 3.8 | 10 | .10 | --- | --- | --- |
| TOTAL | 465.1 | --- | 3051.88 | 211.5 | --- | 294.15 | 110.0 | --- | 7.73 |
| YEAR | 2010.39 | | 3773.90 | | | | | | |

e Estimated

RIO GRANDE DE LOIZA BASIN

50051150 QUEBRADA BLANCA AT EL JAGUAL, PR--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993

PARTICLE-SIZE DISTRIBUTION OF SUSPENDED SEDIMENT

| DATE | TIME | DIS- CHARGE, INST. CUBIC FEET PER SECOND | SEDI- MENT, DIS- CHARGE, SUS- PENDE (MG/L) | SEDI- MENT, DIS- CHARGE, SUS- PENDE (T/DAY) | SED. SUSP. FALL DIAM. PERCENT FINER THAN .002 MM | SED. SUSP. FALL DIAM. PERCENT FINER THAN .004 MM | SED. SUSP. FALL DIAM. PERCENT FINER THAN .008 MM |
|-------------------|------|--|--|---|---|---|---|
| NOV 1992 28... | 0850 | 211 | 5460 | 3110 | 29 | 39 | 47 |

| DATE | SED. SUSP. FALL DIAM. PERCENT FINER THAN .016 MM | SED. SUSP. FALL DIAM. PERCENT FINER THAN .031 MM | SED. SUSP. SIEVE DIAM. PERCENT FINER THAN .062 MM | SED. SUSP. SIEVE DIAM. PERCENT FINER THAN .125 MM | SED. SUSP. SIEVE DIAM. PERCENT FINER THAN .250 MM | SED. SUSP. SIEVE DIAM. PERCENT FINER THAN .500 MM | SED. SUSP. SIEVE DIAM. PERCENT FINER THAN 1.00 MM |
|-------------------|---|---|--|--|--|--|--|
| NOV 1992 28... | 60 | 72 | 83 | 92 | 98 | 99 | 100 |

RIO GRANDE DE LOIZA BASIN

50051150 QUEBRADA BLANCA AT EL JAGUAL--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993

SILT AND CLAY PERCENT OF SUSPENDED SEDIMENT

| DATE | TIME | STREAM- FLOW, INSTAN- TANEOUS (CFS) | SEDI- MENT, SUS- PENDE (MG/L) | SEDI- MENT, DIS- CHARGE, SUS- PENDE (T/DAY) | SED. SUSP. SIEVE DIAM. PERCENT FINER THAN .062 MM |
|----------|------|---|---|---|--|
| NOV 1992 | | | | | |
| 28... | 0820 | 183 | 1790 | 884 | 85 |
| MAY 1993 | | | | | |
| 14... | 1100 | 50 | 485 | 65 | 87 |
| JUL | | | | | |
| 11... | 0810 | 189 | 1670 | 852 | 85 |
| 11... | 1035 | 86 | 3820 | 887 | 80 |
| AUG | | | | | |
| 16... | 0720 | 145 | 3120 | 1220 | 97 |

RIO GRANDE DE LOIZA BASIN

50051180 QUEBRADA SALVATIERRA NEAR SAN LORENZO, PR

LOCATION.--Lat 18°10'24", long 65°58'38", Hydrologic Unit 21010005, on left downstream side of bridge on Highway 181, 0.2 mi (0.3 km) upstream from Río Grande de Loiza, and 1.5 mi (2.4 km) southwest of San Lorenzo.

DRAINAGE AREA.--3.74 mi² (9.69 km²).

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--January 1984 to current year.

GAGE.--Water-stage recorder and crest-stage gage. Elevation of gage is 330 ft (100 m), from topographic map.

REMARKS.--Records fair except those for estimated daily discharges, which are poor. Gage-height and precipitation satellite telemetry at station.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993
DAILY MEAN VALUES

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|-------|-------|-------|-------|-------|------|-------|-------|-------|--------|-------|-------|------|
| 1 | 6.5 | 2.0 | 23 | e11 | 2.7 | e1.5 | .86 | e17 | 1.7 | 2.7 | e3.7 | 2.2 |
| 2 | 5.6 | 1.7 | 13 | e9.0 | 3.4 | e1.6 | .86 | e8.0 | 1.6 | 2.3 | e3.9 | 2.0 |
| 3 | 5.4 | 2.0 | 6.6 | e7.0 | 3.3 | e1.2 | 1.1 | 11 | 1.3 | e6.5 | 3.4 | 2.0 |
| 4 | 5.1 | 7.7 | 5.8 | 5.9 | 2.7 | e1.2 | 1.0 | 4.3 | 1.1 | e4.4 | 3.2 | 2.0 |
| 5 | 5.5 | 3.4 | 4.2 | 5.8 | 2.7 | e1.3 | .87 | 3.6 | .98 | 4.7 | 3.2 | 2.9 |
| 6 | 39 | 7.0 | 3.0 | 5.5 | 2.7 | e1.2 | .86 | 3.2 | .93 | 3.2 | 3.4 | 2.1 |
| 7 | 5.8 | 8.1 | 2.7 | 5.7 | 2.7 | e1.2 | .76 | 1.8 | .91 | 2.2 | 2.8 | 1.9 |
| 8 | 2.6 | 3.2 | 2.8 | 4.9 | 2.5 | e1.2 | .96 | 1.6 | .86 | 3.0 | 2.8 | 2.0 |
| 9 | 2.2 | 2.4 | 2.5 | 5.2 | 2.5 | e1.1 | 1.7 | 7.6 | 1.5 | 1.9 | 2.8 | 2.0 |
| 10 | 2.1 | 5.9 | e2.5 | 4.7 | 2.5 | e1.1 | 1.3 | 5.6 | 3.0 | 1.7 | 4.1 | 5.2 |
| 11 | 2.5 | 3.3 | e2.4 | 4.4 | 2.5 | 1.2 | .98 | 2.5 | 1.6 | 259 | 3.7 | 3.3 |
| 12 | 2.0 | 1.7 | e2.3 | 4.1 | e2.9 | 1.2 | 1.0 | 1.9 | 1.3 | 34 | 2.8 | 2.3 |
| 13 | 1.7 | 1.7 | e3.8 | 3.9 | e3.1 | 1.2 | 1.4 | 1.9 | 1.3 | 17 | 2.8 | 2.1 |
| 14 | 1.6 | 1.6 | e3.5 | 5.3 | e3.3 | 1.0 | 1.8 | 33 | 20 | 10 | 2.5 | 2.2 |
| 15 | 1.6 | 3.3 | e2.5 | 3.7 | e2.7 | 1.0 | 1.8 | 13 | 17 | 7.6 | 3.3 | 2.2 |
| 16 | 1.6 | 2.2 | e2.2 | 3.9 | e2.4 | 1.0 | 2.1 | 5.9 | 8.2 | 8.9 | 67 | 5.2 |
| 17 | 1.6 | 1.5 | e2.1 | 3.9 | e2.3 | 1.9 | 1.4 | 3.7 | 3.2 | e6.5 | 15 | 3.0 |
| 18 | 1.6 | 26 | e2.1 | 3.4 | e2.2 | 1.6 | 1.2 | 2.7 | 16 | e4.4 | 4.7 | 3.3 |
| 19 | 1.9 | 14 | e2.1 | 3.4 | e2.2 | 1.9 | 1.5 | 2.2 | 124 | e3.7 | 3.4 | 3.6 |
| 20 | 4.0 | 4.5 | e2.1 | 3.4 | e2.2 | 1.8 | .98 | 2.2 | 43 | e2.8 | 3.0 | e2.6 |
| 21 | 1.8 | 19 | e3.5 | 3.2 | e2.1 | 1.6 | 1.0 | 2.2 | 10 | e2.3 | 2.5 | e2.3 |
| 22 | 1.3 | 13 | e2.5 | 3.2 | e2.0 | 1.3 | .98 | 1.9 | 12 | 70 | 4.2 | e2.3 |
| 23 | 1.5 | 4.7 | e2.3 | 3.4 | e1.9 | 1.3 | .91 | 1.8 | 5.8 | 76 | 7.6 | e9.5 |
| 24 | 2.0 | 2.1 | e10 | 3.0 | e1.7 | 1.3 | .78 | 1.9 | 5.0 | 38 | 5.3 | e4.4 |
| 25 | 3.2 | 1.3 | e7.0 | 2.8 | e1.5 | 1.2 | .74 | 1.9 | 4.1 | 15 | 4.1 | e3.0 |
| 26 | 2.8 | 1.1 | e5.0 | 2.8 | e1.4 | 1.2 | 1.1 | 2.2 | 3.0 | 11 | 3.9 | e2.5 |
| 27 | 2.1 | 26 | e3.5 | 3.4 | e1.3 | 1.1 | 4.0 | 6.7 | 2.4 | e15 | 2.3 | e2.3 |
| 28 | 1.8 | 124 | e6.8 | 3.4 | e1.4 | .99 | 1.7 | 5.0 | 2.2 | e8.6 | 2.2 | e2.5 |
| 29 | 1.8 | 29 | e4.5 | 4.9 | --- | .92 | 3.0 | 2.2 | 2.4 | e5.2 | 2.0 | e2.7 |
| 30 | 1.9 | 115 | e13 | 3.3 | --- | .86 | e12 | 1.9 | 3.6 | e4.2 | 2.0 | e4.7 |
| 31 | 2.2 | --- | e17 | 2.8 | --- | .86 | --- | 1.8 | --- | e4.4 | 2.3 | --- |
| TOTAL | 122.3 | 438.4 | 166.3 | 140.3 | 66.8 | 39.03 | 50.64 | 162.2 | 299.98 | 636.2 | 179.9 | 90.3 |
| MEAN | 3.95 | 14.6 | 5.36 | 4.53 | 2.39 | 1.26 | 1.69 | 5.23 | 10.0 | 20.5 | 5.80 | 3.01 |
| MAX | 39 | 124 | 23 | 11 | 3.4 | 1.9 | 12 | 33 | 124 | 259 | 67 | 9.5 |
| MIN | 1.3 | 1.1 | 2.1 | 2.8 | 1.3 | .86 | .74 | 1.6 | .86 | 1.7 | 2.0 | 1.9 |
| AC-FT | 243 | 870 | 330 | 278 | 132 | 77 | 100 | 322 | 595 | 1260 | 357 | 179 |
| CFSM | 1.05 | 3.91 | 1.43 | 1.21 | .64 | .34 | .45 | 1.40 | 2.67 | 5.49 | 1.55 | .80 |
| IN. | 1.22 | 4.36 | 1.65 | 1.40 | .66 | .39 | .50 | 1.61 | 2.98 | 6.33 | 1.79 | .90 |

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1984 - 1993, BY WATER YEAR (WY)

| | 1984 | 1985 | 1986 | 1987 | 1988 | 1989 | 1990 | 1991 | 1992 | 1993 |
|------|------|------|------|------|------|------|------|------|------|------|
| MEAN | 10.3 | 15.0 | 5.88 | 5.28 | 3.45 | 3.49 | 2.69 | 8.25 | 6.90 | 5.92 |
| MAX | 36.2 | 33.4 | 22.8 | 23.4 | 10.3 | 17.4 | 6.60 | 35.8 | 15.0 | 20.5 |
| (WY) | 1986 | 1988 | 1988 | 1992 | 1984 | 1989 | 1985 | 1985 | 1984 | 1993 |
| MIN | 2.31 | 2.72 | 1.17 | 1.16 | 1.23 | 1.15 | .88 | 1.53 | 1.78 | 1.58 |
| (WY) | 1987 | 1990 | 1990 | 1990 | 1990 | 1992 | 1984 | 1990 | 1991 | 1986 |

| SUMMARY STATISTICS | FOR 1992 CALENDAR YEAR | FOR 1993 WATER YEAR | WATER YEARS 1984 - 1993 |
|--------------------------|------------------------|---------------------|-------------------------|
| ANNUAL TOTAL | 2607.15 | 2392.35 | |
| ANNUAL MEAN | 7.12 | 6.55 | 6.87 |
| HIGHEST ANNUAL MEAN | | | 10.4 |
| LOWEST ANNUAL MEAN | | | 3.19 |
| HIGHEST DAILY MEAN | 472 | 259 | 472 |
| LOWEST DAILY MEAN | .84 | .74 | .29 |
| ANNUAL SEVEN-DAY MINIMUM | .98 | .90 | .41 |
| INSTANTANEOUS PEAK FLOW | | 2370 | 9320 |
| INSTANTANEOUS PEAK STAGE | | 11.32 | 17.10 |
| INSTANTANEOUS LOW FLOW | | .60 | .26 |
| ANNUAL RUNOFF (AC-FT) | 5170 | 4750 | 4980 |
| ANNUAL RUNOFF (CFSM) | 1.90 | 1.75 | 1.84 |
| ANNUAL RUNOFF (INCHES) | 25.93 | 23.80 | 24.96 |
| 10 PERCENT EXCEEDS | 9.0 | 10 | 10 |
| 50 PERCENT EXCEEDS | 1.8 | 2.7 | 2.1 |
| 90 PERCENT EXCEEDS | 1.1 | 1.2 | 1.0 |

e Estimated

RIO GRANDE DE LOIZA BASIN

50051180 QUEBRADA SALVATIERRA NEAR SAN LORENZO, PR--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.-- Water years 1984 to 1986 and water years 1989 to current year.

PERIOD OF DAILY RECORD.--

SUSPENDED-SEDIMENT DISCHARGE: October 1984 to September 1986 and from October 1989 to September 1993.

INSTRUMENTATION.--

EXTREMES FOR PERIOD OF DAILY RECORD.--

SEDIMENT CONCENTRATION: Maximum daily mean, 7,300 mg/L Oct. 06, 1985; Minimum daily mean, 1 mg/L several days.

SEDIMENT LOADS: Maximum daily mean, 11,100 tons (10,100 tonnes) Jan. 05, 1992; Minimum daily mean, 0.0 ton (0.0 tonne) several days.

EXTREMES FOR WATER YEAR 1993.--

SEDIMENT CONCENTRATION: Maximum daily mean, 743 mg/L July 11, 1993; Minimum daily mean, 1.0 mg/L several days.

SEDIMENT LOADS: Maximum daily mean, 1,140 tons (1,030 tonnes) July 11, 1993; Minimum daily mean, <0.01 ton (<0.01 tonne) several days.

SEDIMENT DISCHARGE, SUSPENDED (TONS/DAY), WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993

| DAY | MEAN DISCHARGE (CFS) | MEAN CONCENTRATION (MG/L) | SEDIMENT DISCHARGE (TONS/DAY) | MEAN DISCHARGE (CFS) | MEAN CONCENTRATION (MG/L) | SEDIMENT DISCHARGE (TONS/DAY) | MEAN DISCHARGE (CFS) | MEAN CONCENTRATION (MG/L) | SEDIMENT DISCHARGE (TONS/DAY) |
|---------|----------------------------|---------------------------------|-------------------------------------|----------------------------|---------------------------------|-------------------------------------|----------------------------|---------------------------------|-------------------------------------|
| OCTOBER | | | NOVEMBER | | | DECEMBER | | | |
| 1 | 6.5 | 2 | .04 | 2.0 | 3 | .02 | 23 | 111 | 11 |
| 2 | 5.6 | 2 | .02 | 1.7 | 3 | .02 | 13 | 100 | 3.3 |
| 3 | 5.4 | 2 | .03 | 2.0 | 4 | .03 | 6.6 | 44 | .86 |
| 4 | 5.1 | 2 | .02 | 7.7 | 62 | 1.4 | 5.8 | 19 | .33 |
| 5 | 5.5 | 2 | .02 | 3.4 | 30 | .31 | 4.2 | 15 | .16 |
| 6 | 39 | 97 | 72 | 7.0 | 21 | .54 | 3.0 | 12 | .10 |
| 7 | 5.8 | 19 | .33 | 8.1 | 20 | .57 | 2.7 | 8 | .06 |
| 8 | 2.6 | 12 | .09 | 3.2 | 6 | .05 | 2.8 | 4 | .03 |
| 9 | 2.2 | 8 | .05 | 2.4 | 3 | .02 | 2.5 | 2 | .02 |
| 10 | 2.1 | 7 | .04 | 5.9 | 8 | .15 | e2.5 | 2 | e.02 |
| 11 | 2.5 | 6 | .04 | 3.3 | 3 | .03 | e2.4 | 4 | e.03 |
| 12 | 2.0 | 5 | .04 | 1.7 | 3 | .02 | e2.3 | 4 | e.03 |
| 13 | 1.7 | 6 | .03 | 1.7 | 3 | .02 | e3.8 | 3 | e.04 |
| 14 | 1.6 | 5 | .02 | 1.6 | 3 | .02 | e3.5 | 4 | e.03 |
| 15 | 1.6 | 4 | .02 | 3.3 | 13 | .19 | e2.5 | 8 | e.06 |
| 16 | 1.6 | 3 | .02 | 2.2 | 16 | .10 | e2.2 | 12 | e.07 |
| 17 | 1.6 | 3 | .02 | 1.5 | 19 | .07 | e2.1 | 8 | e.04 |
| 18 | 1.6 | 3 | .02 | 26 | 94 | 14 | e2.1 | 4 | e.02 |
| 19 | 1.9 | 4 | .02 | 14 | 37 | 1.7 | e2.1 | 3 | e.02 |
| 20 | 4.0 | 9 | .19 | 4.5 | 12 | .16 | e2.1 | 3 | e.02 |
| 21 | 1.8 | 6 | .04 | 19 | 82 | 18 | e3.5 | 4 | e.04 |
| 22 | 1.3 | 3 | .01 | 13 | 15 | .73 | e2.5 | 6 | e.04 |
| 23 | 1.5 | 1 | .00 | 4.7 | 3 | .04 | e2.3 | 5 | e.04 |
| 24 | 2.0 | 2 | .00 | 2.1 | 6 | .04 | e10 | 3 | e.09 |
| 25 | 3.2 | 2 | .02 | 1.3 | 8 | .04 | e7.0 | 3 | e.06 |
| 26 | 2.8 | 3 | .02 | 1.1 | 6 | .02 | e5.0 | 1110 | e15 |
| 27 | 2.1 | 4 | .02 | 26 | 81 | 16 | e3.5 | 25 | e.23 |
| 28 | 1.8 | 5 | .03 | 124 | 424 | 463 | e6.8 | 4 | e.09 |
| 29 | 1.8 | 4 | .02 | 29 | 47 | 14 | e4.5 | 7 | e.08 |
| 30 | 1.9 | 3 | .02 | 108 | 200 | 314 | e13 | 15 | e.51 |
| 31 | 2.2 | 3 | .02 | --- | --- | --- | e17 | 18 | e.83 |
| TOTAL | 122.3 | --- | 73.26 | 431.4 | --- | 845.29 | 166.3 | --- | 33.25 |

e Estimated

RIO GRANDE DE LOIZA BASIN

50051180 QUEBRADA SALVATIERRA NR SAN LORENZO, PR--Continued

SEDIMENT DISCHARGE, SUSPENDED (TONS/DAY), WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993

| DAY | MEAN DISCHARGE (CFS) | MEAN CONCENTRATION (MG/L) | SEDIMENT DISCHARGE (TONS/DAY) | MEAN DISCHARGE (CFS) | MEAN CONCENTRATION (MG/L) | SEDIMENT DISCHARGE (TONS/DAY) | MEAN DISCHARGE (CFS) | MEAN CONCENTRATION (MG/L) | SEDIMENT DISCHARGE (TONS/DAY) |
|---------|----------------------------|---------------------------------|-------------------------------------|----------------------------|---------------------------------|-------------------------------------|----------------------------|---------------------------------|-------------------------------------|
| JANUARY | | | FEBRUARY | | | MARCH | | | |
| 1 | e11 | 17 | e.49 | 2.7 | 5 | .04 | e1.5 | 3 | e.02 |
| 2 | e9.0 | 15 | e.36 | 3.4 | 9 | .10 | e1.6 | 2 | e.01 |
| 3 | e7.0 | 13 | e.23 | 3.3 | 10 | .08 | e1.2 | 1 | e<.01 |
| 4 | 5.9 | 10 | .17 | 2.7 | 7 | .06 | e1.2 | 1 | e<.01 |
| 5 | 5.8 | 10 | .15 | 2.7 | 7 | .06 | e1.3 | 1 | e<.01 |
| 6 | 5.5 | 10 | .16 | 2.7 | 6 | .04 | e1.2 | 3 | e.01 |
| 7 | 5.7 | 10 | .15 | 2.7 | 5 | .04 | e1.2 | 6 | e.02 |
| 8 | 4.9 | 11 | .14 | 2.5 | 5 | .04 | e1.2 | 7 | e.02 |
| 9 | 5.2 | 9 | .12 | 2.5 | 4 | .03 | e1.1 | 7 | e.02 |
| 10 | 4.7 | 6 | .08 | 2.5 | 4 | .02 | e1.1 | 6 | e.02 |
| 11 | 4.4 | 5 | .06 | 2.5 | 4 | .03 | 1.2 | 6 | .02 |
| 12 | 4.1 | 6 | .07 | e2.9 | 5 | e.04 | 1.2 | 6 | .02 |
| 13 | 3.9 | 7 | .08 | e3.1 | 5 | e.04 | 1.2 | 6 | .02 |
| 14 | 5.3 | 14 | .24 | e3.3 | 5 | e.05 | 1.0 | 6 | .02 |
| 15 | 3.7 | 11 | .10 | e2.7 | 6 | e.05 | 1.0 | 5 | .02 |
| 16 | 3.9 | 8 | .09 | e2.4 | 9 | e.06 | 1.0 | 5 | .02 |
| 17 | 3.9 | 6 | .06 | e2.3 | 8 | e.05 | 1.9 | 5 | .02 |
| 18 | 3.4 | 6 | .06 | e2.2 | 6 | e.03 | 1.6 | 5 | .02 |
| 19 | 3.4 | 11 | .10 | e2.2 | 4 | e.02 | 1.9 | 5 | .02 |
| 20 | 3.4 | 13 | .11 | e2.2 | 3 | e.02 | 1.8 | 5 | .03 |
| 21 | 3.2 | 8 | .07 | e2.1 | 2 | e.02 | 1.6 | 4 | .02 |
| 22 | 3.2 | 5 | .04 | e2.0 | 2 | e.02 | 1.3 | 5 | .02 |
| 23 | 3.4 | 3 | .03 | e1.9 | 2 | e.02 | 1.3 | 6 | .02 |
| 24 | 3.0 | 4 | .04 | e1.7 | 2 | e<.01 | 1.3 | 6 | .02 |
| 25 | 2.8 | 4 | .04 | e1.5 | 2 | e<.01 | 1.2 | 5 | .02 |
| 26 | 2.8 | 5 | .04 | e1.4 | 2 | e<.01 | 1.2 | 5 | .02 |
| 27 | 3.4 | 5 | .04 | e1.3 | 2 | e<.01 | 1.1 | 5 | .02 |
| 28 | 3.4 | 5 | .04 | e1.4 | 2 | e.01 | .99 | 4 | .02 |
| 29 | 4.9 | 15 | .21 | --- | --- | --- | .92 | 4 | .02 |
| 30 | 3.3 | 12 | .11 | --- | --- | --- | .86 | 5 | .02 |
| 31 | 2.8 | 7 | .06 | --- | --- | --- | .86 | 5 | .02 |
| TOTAL | 140.3 | --- | 3.74 | 66.8 | --- | 0.97 | 39.03 | --- | 0.55 |

e Estimated

RIO GRANDE DE LOIZA BASIN

50051180 QUEBRADA SALVATIERRA NR SAN LORENZO, PR--Continued

SEDIMENT DISCHARGE, SUSPENDED (TONS/DAY), WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993

| DAY | MEAN DISCHARGE (CFS) | MEAN CONCENTRATION (MG/L) | SEDIMENT DISCHARGE (TONS/DAY) | MEAN DISCHARGE (CFS) | MEAN CONCENTRATION (MG/L) | SEDIMENT DISCHARGE (TONS/DAY) | MEAN DISCHARGE (CFS) | MEAN CONCENTRATION (MG/L) | SEDIMENT DISCHARGE (TONS/DAY) |
|-------|----------------------------|---------------------------------|-------------------------------------|----------------------------|---------------------------------|-------------------------------------|----------------------------|---------------------------------|-------------------------------------|
| APRIL | | | MAY | | | JUNE | | | |
| 1 | .86 | 5 | .02 | e17 | 14 | e.64 | 1.7 | 4 | .02 |
| 2 | .86 | 5 | .02 | e8.0 | 14 | e.30 | 1.6 | 3 | .02 |
| 3 | 1.1 | 5 | .01 | 11 | 36 | 1.0 | 1.3 | 4 | .02 |
| 4 | 1.0 | 5 | .01 | 4.3 | 15 | .17 | 1.1 | 7 | .02 |
| 5 | .87 | 5 | .01 | 3.6 | 7 | .07 | .98 | 6 | .02 |
| 6 | .86 | 4 | .01 | 3.2 | 5 | .04 | .93 | 5 | .02 |
| 7 | .76 | 3 | .00 | 1.8 | 5 | .03 | .91 | 5 | .02 |
| 8 | .96 | 1 | .00 | 1.6 | 5 | .02 | .86 | 5 | .02 |
| 9 | 1.7 | 2 | .00 | 7.6 | 18 | .42 | 1.5 | 5 | .01 |
| 10 | 1.3 | 3 | .02 | 5.6 | 9 | .14 | 3.0 | 7 | .06 |
| 11 | .98 | 4 | .01 | 2.5 | 4 | .02 | 1.6 | 5 | .02 |
| 12 | 1.0 | 3 | .00 | 1.9 | 3 | .01 | 1.3 | 4 | .02 |
| 13 | 1.4 | 3 | .00 | 1.9 | 3 | .02 | 1.3 | 4 | .02 |
| 14 | 1.8 | 2 | .01 | 33 | 114 | 32 | 20 | 54 | 5.5 |
| 15 | 1.8 | 2 | .00 | 13 | 29 | 1.0 | 17 | 37 | 1.9 |
| 16 | 2.1 | 3 | .01 | 5.9 | 12 | .22 | 8.2 | 21 | .58 |
| 17 | 1.4 | 3 | .02 | 3.7 | 4 | .04 | 3.2 | 13 | .11 |
| 18 | 1.2 | 3 | .01 | 2.7 | 5 | .04 | 16 | 55 | 24 |
| 19 | 1.5 | 6 | .02 | 2.2 | 5 | .03 | 124 | 363 | 182 |
| 20 | .98 | 7 | .01 | 2.2 | 4 | .02 | 43 | 124 | 25 |
| 21 | 1.0 | 3 | .01 | 2.2 | 4 | .02 | 10 | 26 | .91 |
| 22 | .98 | 3 | .01 | 1.9 | 4 | .02 | 12 | 31 | 1.1 |
| 23 | .91 | 4 | .02 | 1.8 | 4 | .02 | 5.8 | 12 | .19 |
| 24 | .78 | 5 | .02 | 1.9 | 4 | .02 | 5.0 | 6 | .08 |
| 25 | .74 | 6 | .02 | 1.9 | 4 | .02 | 4.1 | 5 | .05 |
| 26 | 1.1 | 7 | .02 | 2.2 | 7 | .04 | 3.0 | 5 | .04 |
| 27 | 4.0 | 11 | .14 | 6.7 | 17 | .55 | 2.4 | 5 | .03 |
| 28 | 1.7 | 6 | .03 | 5.0 | 12 | .21 | 2.2 | 5 | .02 |
| 29 | 3.0 | 7 | .06 | 2.2 | 6 | .04 | 2.4 | 4 | .03 |
| 30 | e12 | 14 | .46 | 1.9 | 5 | .02 | 3.6 | 3 | .04 |
| 31 | --- | --- | --- | 1.8 | 4 | .02 | --- | --- | --- |
| TOTAL | 50.64 | --- | 0.98 | 162.2 | --- | 37.21 | 299.98 | --- | 241.87 |

e Estimated

RIO GRANDE DE LOIZA BASIN

50051180 QUEBRADA SALVATIERRA NR SAN LORENZO, PR--Continued

SEDIMENT DISCHARGE, SUSPENDED (TONS/DAY), WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993

| DAY | MEAN DISCHARGE (CFS) | MEAN CONCEN- TRATION (MG/L) | SEDIMENT DISCHARGE (TONS/DAY) | MEAN DISCHARGE (CFS) | MEAN CONCEN- TRATION (MG/L) | SEDIMENT DISCHARGE (TONS/DAY) | MEAN DISCHARGE (CFS) | MEAN CONCEN- TRATION (MG/L) | SEDIMENT DISCHARGE (TONS/DAY) |
|-------|----------------------------|--------------------------------------|-------------------------------------|----------------------------|--------------------------------------|-------------------------------------|----------------------------|--------------------------------------|-------------------------------------|
| JULY | | | AUGUST | | | SEPTEMBER | | | |
| 1 | 2.7 | 3 | .02 | e3.7 | 5 | e.05 | 2.2 | 6 | .03 |
| 2 | 2.3 | 3 | .02 | e3.9 | 3 | e.03 | 2.0 | 6 | .03 |
| 3 | e6.5 | 14 | e.25 | 3.4 | 2 | .02 | 2.0 | 7 | .04 |
| 4 | e4.4 | 8 | e.10 | 3.2 | 3 | .03 | 2.0 | 8 | .04 |
| 5 | 4.7 | 5 | .06 | 3.2 | 7 | .06 | 2.9 | 12 | .09 |
| 6 | 3.2 | 11 | .08 | 3.4 | 9 | .08 | 2.1 | 17 | .09 |
| 7 | 2.2 | 12 | .08 | 2.8 | 8 | .07 | 1.9 | 12 | .06 |
| 8 | 3.0 | 7 | .05 | 2.8 | 5 | .04 | 2.0 | 4 | .03 |
| 9 | 1.9 | 3 | .01 | 2.8 | 2 | .02 | 2.0 | 2 | .02 |
| 10 | 1.7 | 2 | .00 | 4.1 | 2 | .02 | 5.2 | 21 | .31 |
| 11 | 259 | 743 | 1140 | 3.7 | 2 | .02 | 3.3 | 18 | .18 |
| 12 | 34 | 81 | 9.2 | 2.8 | 6 | .05 | 2.3 | 10 | .06 |
| 13 | 17 | 23 | 1.3 | 2.8 | 9 | .07 | 2.1 | 5 | .03 |
| 14 | 10 | 8 | .25 | 2.5 | 10 | .06 | 2.2 | 4 | .02 |
| 15 | 7.6 | 6 | .13 | 3.3 | 12 | .10 | 2.2 | 3 | .02 |
| 16 | 8.9 | 5 | .13 | 67 | 192 | 53 | 5.2 | 12 | .15 |
| 17 | e6.5 | 6 | e.10 | 15 | 49 | 2.1 | 3.0 | 11 | .08 |
| 18 | e4.4 | 7 | e.08 | 4.7 | 15 | .27 | 3.3 | 8 | .08 |
| 19 | e3.7 | 7 | e.07 | 3.4 | 3 | .03 | 3.6 | 6 | .07 |
| 20 | e2.8 | 4 | e.03 | 3.0 | 2 | .02 | e2.6 | 5 | e.04 |
| 21 | e2.3 | 2 | e.01 | 2.5 | 2 | .02 | e2.3 | 5 | e.04 |
| 22 | 70 | 129 | 120 | 4.2 | 7 | .24 | e2.3 | 6 | e.04 |
| 23 | 76 | 186 | 69 | 7.6 | 14 | .35 | e9.5 | 30 | e1.8 |
| 24 | 38 | 113 | 17 | 5.3 | 7 | .11 | e4.4 | 14 | e.20 |
| 25 | 15 | 27 | 1.3 | 4.1 | 5 | .05 | e3.0 | 7 | e.06 |
| 26 | 11 | 19 | .61 | 3.9 | 4 | .05 | e2.5 | 4 | e.03 |
| 27 | e15 | 35 | 1.7 | 2.3 | 5 | .02 | e2.3 | 4 | e.02 |
| 28 | e8.6 | 15 | .34 | 2.2 | 5 | .03 | e2.5 | 3 | e.02 |
| 29 | e5.2 | 10 | .14 | 2.0 | 6 | .04 | e2.7 | 3 | e.02 |
| 30 | e4.2 | 10 | .11 | 2.0 | 7 | .04 | e4.7 | 8 | e.15 |
| 31 | e4.4 | 8 | .09 | 2.3 | 6 | .04 | --- | --- | --- |
| TOTAL | 636.2 | --- | 1362.26 | 179.9 | --- | 57.13 | 90.3 | --- | 3.85 |
| YEAR | 2385.35 | | 2660.36 | | | | | | |

e Estimated

RIO GRANDE DE LOIZA BASIN

50051180 QUEBRADA SALVATIERRA NEAR SAN LORENZO--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993

SILT AND CLAY PERCENT OF SUSPENDED SEDIMENT

| DATE | TIME | STREAM- FLOW, INSTAN- TANEOUS (CFS) | SEDI- MENT, SUS- PENDE (MG/L) | SEDI- MENT, DIS- CHARGE, SUS- PENDE (T/DAY) | SED. SUSP. SIEVE DIAM. PERCENT FINER THAN .062 MM |
|----------|------|---|---|---|--|
| NOV 1992 | | | | | |
| 28... | 0810 | 1370 | 1740 | 6440 | 98 |
| MAY 1993 | | | | | |
| 14... | 1045 | 147 | 1160 | 460 | 90 |
| JUN | | | | | |
| 14... | 1000 | 45 | 560 | 68 | 98 |
| JUL | | | | | |
| 11... | 0725 | 300 | 2720 | 2200 | 96 |
| 11... | 1020 | 331 | 2060 | 1840 | 60 |
| 22... | 1650 | 193 | 4890 | 2550 | 67 |
| AUG | | | | | |
| 16... | 1033 | 111 | 274 | 82 | 95 |

RIO GRANDE DE LOIZA BASIN

50051310 RIO CAYAGUAS AT CERRO GORDO, PR

LOCATION.--Lat 18°09'13", long 65°57'20", Hydrologic Unit 21010005, at downstream side of bridge on Highway 912, at Barrio Cerro Gordo, 2.8 mi (4.5 km) south of San Lorenzo.

DRAINAGE AREA.--10.2 mi² (26.4 km²).

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--October 1977 to current year.

GAGE.--Water-stage recorder and crest-stage gage. Elevation of gage is 490 ft (150 m), from topographic map. Prior to Oct. 1, 1983, at site 2,000 ft (610 m) downstream at different datum.

REMARKS.--Records poor. Sand removal at a commercial level is practiced at times during the year. This takes place about one hundred feet downstream from the low water control. Gage-height and precipitation satellite telemetry at station.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993
DAILY MEAN VALUES

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|-------|------|------|------|------|------|------|------|------|------|-------|------|------|
| 1 | 19 | 45 | 196 | 87 | 31 | 21 | 15 | 156 | 16 | 22 | 32 | 33 |
| 2 | 20 | 26 | 76 | 55 | 33 | 22 | 14 | 69 | 16 | 22 | 31 | 37 |
| 3 | 21 | 25 | 72 | 44 | 31 | 21 | 16 | 30 | 15 | 39 | 30 | 66 |
| 4 | 21 | 73 | 55 | 36 | 28 | 20 | 15 | 24 | 14 | 33 | 29 | 30 |
| 5 | 23 | 39 | 46 | 33 | 28 | 21 | 16 | 42 | 14 | 20 | 30 | 79 |
| 6 | 23 | 89 | 43 | 57 | 28 | 21 | 17 | 43 | 14 | 19 | 29 | 48 |
| 7 | 24 | 56 | 38 | 64 | 29 | 20 | 15 | 17 | 14 | 32 | 30 | 28 |
| 8 | 24 | 35 | 35 | 53 | 29 | 21 | 17 | 15 | 16 | 64 | 31 | 61 |
| 9 | 24 | 32 | 34 | 51 | 29 | 21 | 18 | 225 | 15 | 26 | 29 | 59 |
| 10 | 25 | 29 | 33 | 43 | 27 | 21 | 16 | 104 | 29 | 21 | 29 | 93 |
| 11 | 26 | 28 | 33 | 39 | 32 | 20 | 14 | 37 | 25 | 1130 | 33 | 64 |
| 12 | 25 | 26 | 33 | 38 | 34 | 21 | 14 | 24 | 17 | 177 | 30 | 36 |
| 13 | 25 | 36 | 33 | 34 | 34 | 24 | 14 | 21 | 46 | 90 | 25 | 32 |
| 14 | 24 | 29 | 33 | 37 | 26 | 23 | 17 | 210 | 255 | 61 | 25 | 32 |
| 15 | 24 | 43 | 33 | 33 | 24 | 24 | 16 | 57 | 139 | 46 | 29 | 28 |
| 16 | 27 | 34 | 32 | 34 | 24 | 22 | 14 | 23 | 64 | 104 | 390 | 75 |
| 17 | 29 | 74 | 32 | 32 | 24 | 26 | 13 | 16 | 25 | 48 | 104 | 33 |
| 18 | 28 | 99 | 32 | 33 | 23 | 24 | 14 | 14 | 149 | 35 | 48 | 54 |
| 19 | 27 | 75 | 32 | 39 | 23 | 31 | 17 | 13 | 649 | 33 | 34 | 36 |
| 20 | 27 | 57 | 33 | 31 | 24 | 29 | 14 | 16 | 290 | 32 | 27 | 32 |
| 21 | 205 | 43 | 36 | 29 | 23 | 25 | 14 | 15 | 69 | 32 | 27 | 27 |
| 22 | 76 | 63 | 34 | 41 | 22 | 21 | 13 | 15 | 55 | 280 | 30 | 30 |
| 23 | 36 | 55 | 32 | 43 | 25 | 20 | 13 | 15 | 35 | 253 | 78 | 202 |
| 24 | 55 | 75 | 35 | 33 | 25 | 20 | 13 | 15 | 36 | 128 | 33 | 127 |
| 25 | 75 | 49 | 39 | 98 | 22 | 22 | 14 | 24 | 25 | 66 | 27 | 54 |
| 26 | 38 | 41 | 80 | 42 | 22 | 22 | 20 | 29 | 21 | 53 | 23 | 29 |
| 27 | 28 | 62 | 49 | 54 | 22 | 20 | 23 | 85 | 20 | 49 | 22 | 24 |
| 28 | 26 | 264 | 34 | 70 | 21 | 17 | 15 | 53 | 19 | 37 | 24 | 33 |
| 29 | 27 | 77 | 85 | 186 | --- | 17 | 77 | 22 | 20 | 33 | 20 | 131 |
| 30 | 26 | 195 | 65 | 48 | --- | 16 | 74 | 17 | 32 | 32 | 21 | 190 |
| 31 | 40 | --- | 44 | 34 | --- | 15 | --- | 15 | --- | 33 | 35 | --- |
| TOTAL | 1118 | 1874 | 1487 | 1551 | 743 | 668 | 582 | 1461 | 2154 | 3050 | 1385 | 1803 |
| MEAN | 36.1 | 62.5 | 48.0 | 50.0 | 26.5 | 21.5 | 19.4 | 47.1 | 71.8 | 98.4 | 44.7 | 60.1 |
| MAX | 205 | 264 | 196 | 186 | 34 | 31 | 77 | 225 | 649 | 1130 | 390 | 202 |
| MIN | 19 | 25 | 32 | 29 | 21 | 15 | 13 | 13 | 14 | 19 | 20 | 24 |
| AC-FT | 2220 | 3720 | 2950 | 3080 | 1470 | 1320 | 1150 | 2900 | 4270 | 6050 | 2750 | 3580 |
| CFSM | 3.54 | 6.12 | 4.70 | 4.91 | 2.60 | 2.11 | 1.90 | 4.62 | 7.04 | 9.65 | 4.38 | 5.89 |
| IN. | 4.08 | 6.83 | 5.42 | 5.66 | 2.71 | 2.44 | 2.12 | 5.33 | 7.86 | 11.12 | 5.05 | 6.58 |

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1977 - 1993, BY WATER YEAR (WY)

| | 64.2 | 74.4 | 47.0 | 30.0 | 26.7 | 21.9 | 20.8 | 50.1 | 49.4 | 45.7 | 47.4 | 55.7 |
|------|------|------|------|------|------|------|------|------|------|------|------|------|
| MEAN | 176 | 196 | 163 | 50.0 | 67.5 | 45.4 | 46.0 | 155 | 140 | 118 | 202 | 216 |
| MAX | 1986 | 1988 | 1988 | 1993 | 1984 | 1989 | 1985 | 1985 | 1979 | 1979 | 1979 | 1979 |
| MIN | 14.4 | 19.2 | 12.5 | 14.6 | 11.0 | 11.3 | 10.7 | 9.68 | 14.4 | 16.0 | 14.5 | 16.9 |
| (WY) | 1992 | 1982 | 1992 | 1990 | 1992 | 1992 | 1980 | 1990 | 1991 | 1990 | 1991 | 1980 |

SUMMARY STATISTICS

FOR 1992 CALENDAR YEAR

FOR 1993 WATER YEAR

WATER YEARS 1977 - 1993

| | | | |
|--------------------------|---------|--------|-------|
| ANNUAL TOTAL | 16713.1 | 17876 | |
| ANNUAL MEAN | 45.7 | 49.0 | 44.5 |
| HIGHEST ANNUAL MEAN | | | 89.7 |
| LOWEST ANNUAL MEAN | | | 18.6 |
| HIGHEST DAILY MEAN | 831 | May 26 | 2900 |
| LOWEST DAILY MEAN | 8.5 | Apr 10 | 7.1 |
| ANNUAL SEVEN-DAY MINIMUM | 9.0 | Apr 5 | 8.6 |
| INSTANTANEOUS PEAK FLOW | | | 14 |
| INSTANTANEOUS PEAK STAGE | | | 5490 |
| INSTANTANEOUS LOW FLOW | | | 17.33 |
| ANNUAL RUNOFF (AC-FT) | 33150 | 35460 | 13 |
| ANNUAL RUNOFF (CFSM) | 4.48 | 4.80 | 7.1 |
| ANNUAL RUNOFF (INCHES) | 60.95 | 65.19 | 32250 |
| 10 PERCENT EXCEEDS | 84 | 78 | 4.36 |
| 50 PERCENT EXCEEDS | 27 | 31 | 59.29 |
| 90 PERCENT EXCEEDS | 10 | 16 | 69 |
| | | | 24 |
| | | | 13 |

RIO GRANDE DE LOIZA BASIN

50051800 RIO GRANDE DE LOIZA AT HWY 183 NEAR SAN LORENZO, PR

LOCATION.--Lat 18°11'09", long 65°57'42", Hydrologic Unit 21010005, at upstream side of bridge on Highway 183 by-pass, 0.4 mi (0.6 km) south from Plaza de San Lorenzo, 1.4 mi (2.2 km), southwest from Escuela Rafael Colón García and 2.0 mi (3.2 km) northwest from Escuela Segunda Unidad de Carlos Zayas.

DRAINAGE AREA.--25.0 mi² (64.8 km²).

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--February 1990 to current year.

GAGE.--Water-stage recorder. Elevation of gage is 262 ft (80 m), from topographic map.

REMARKS.--Records poor. Water purification plant located about 0.2 mi (0.3 km) upstream from gage. Gage-height and precipitation satellite telemetry at station.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993
DAILY MEAN VALUES

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|-------|------|------|------|------|------|------|------|------|-------|-------|------|------|
| 1 | 96 | 74 | 226 | 215 | e84 | 48 | 27 | 250 | 50 | e59 | 103 | 84 |
| 2 | 89 | 55 | 168 | 156 | e98 | 50 | 28 | 306 | 46 | e56 | 97 | 86 |
| 3 | 87 | 56 | 188 | 123 | 84 | 46 | 28 | 138 | 38 | e101 | 89 | 103 |
| 4 | 80 | 143 | 141 | 113 | 72 | 44 | 29 | 81 | 38 | e73 | 85 | 70 |
| 5 | 78 | 84 | 119 | 91 | 68 | 44 | 26 | 90 | 41 | e54 | 83 | 105 |
| 6 | 134 | 164 | 110 | 122 | 69 | 44 | 27 | 93 | 41 | e47 | 80 | 82 |
| 7 | 85 | 135 | 102 | 146 | 68 | 42 | 24 | 56 | 39 | e55 | 77 | 65 |
| 8 | 75 | 78 | 97 | 132 | 64 | 42 | 29 | 50 | 41 | e95 | 81 | 102 |
| 9 | 73 | 68 | 94 | 119 | 63 | 43 | 45 | 191 | 45 | e54 | 74 | 107 |
| 10 | 69 | 65 | 91 | 110 | 61 | 40 | 36 | 133 | 61 | e44 | 78 | 204 |
| 11 | 67 | 58 | 87 | 99 | 70 | 40 | 27 | 73 | 64 | e1890 | 85 | 124 |
| 12 | 66 | 54 | 83 | 99 | 83 | 41 | 26 | 56 | 43 | e262 | 76 | 82 |
| 13 | 61 | 63 | 85 | 90 | e70 | 45 | 28 | 48 | 68 | e204 | 67 | 74 |
| 14 | 61 | 54 | 88 | 98 | e62 | 44 | 46 | 362 | 211 | 175 | 62 | 73 |
| 15 | 61 | 113 | 97 | 85 | e60 | 45 | 34 | 145 | 226 | 155 | 70 | 67 |
| 16 | 62 | 75 | 84 | 84 | e62 | 41 | 31 | 89 | 154 | 237 | 449 | 137 |
| 17 | 63 | 114 | 82 | 83 | e64 | 51 | e117 | 70 | 79 | 156 | 177 | 81 |
| 18 | 65 | 178 | 79 | 77 | e58 | 50 | e30 | 65 | 184 | 137 | 103 | 174 |
| 19 | 60 | 161 | 77 | 85 | 58 | 58 | e36 | 57 | e1300 | 129 | 87 | 95 |
| 20 | 71 | 126 | 75 | 74 | 59 | 54 | e32 | 58 | e668 | 120 | 81 | 96 |
| 21 | 130 | 107 | 75 | 70 | 57 | 47 | e35 | 56 | e327 | 118 | 78 | 69 |
| 22 | 92 | 105 | 85 | e130 | 55 | 38 | e27 | 53 | e264 | 436 | 81 | 67 |
| 23 | 65 | 95 | 78 | e86 | 55 | 36 | 37 | 52 | e124 | 379 | 210 | 264 |
| 24 | 77 | 108 | 76 | e150 | 57 | 38 | 25 | 53 | e109 | 322 | 152 | 166 |
| 25 | 140 | 79 | 85 | e110 | 53 | 39 | 24 | 61 | e81 | 234 | 99 | 92 |
| 26 | 95 | 70 | 184 | e98 | 49 | 45 | 34 | 97 | e71 | 197 | 87 | 79 |
| 27 | 63 | 130 | 125 | e120 | 50 | 40 | 50 | 105 | e64 | 191 | 79 | 69 |
| 28 | 57 | 443 | 90 | e300 | 50 | 35 | 29 | 86 | e59 | 140 | 76 | 73 |
| 29 | 61 | 195 | 167 | e120 | --- | 32 | 139 | 57 | e58 | 122 | 72 | 185 |
| 30 | 60 | 412 | 138 | e94 | --- | 30 | 139 | 50 | e90 | 110 | 68 | 223 |
| 31 | 62 | --- | 148 | e84 | --- | 29 | --- | 46 | --- | 105 | 91 | --- |
| TOTAL | 2405 | 3662 | 3424 | 3563 | 1803 | 1321 | 1245 | 3127 | 4684 | 6457 | 3197 | 3298 |
| MEAN | 77.6 | 122 | 110 | 115 | 64.4 | 42.6 | 41.5 | 101 | 156 | 208 | 103 | 110 |
| MAX | 140 | 443 | 226 | 300 | 98 | 58 | 139 | 362 | 1300 | 1890 | 449 | 264 |
| MIN | 57 | 54 | 75 | 70 | 49 | 29 | 24 | 46 | 38 | 44 | 62 | 65 |
| AC-FT | 4770 | 7260 | 6790 | 7070 | 3580 | 2620 | 2470 | 6200 | 9290 | 12810 | 6340 | 6540 |
| CFSM | 3.10 | 4.88 | 4.42 | 4.60 | 2.58 | 1.70 | 1.66 | 4.03 | 6.25 | 8.33 | 4.13 | 4.40 |
| IN. | 3.58 | 5.45 | 5.09 | 5.30 | 2.68 | 1.97 | 1.85 | 4.65 | 6.97 | 9.61 | 4.76 | 4.91 |

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1990 - 1993, BY WATER YEAR (WY)

| | | | | | | | | | | | | |
|------|------|------|------|------|------|------|------|------|------|------|------|------|
| MEAN | 142 | 153 | 93.3 | 123 | 51.0 | 36.7 | 29.5 | 89.6 | 144 | 117 | 97.8 | 129 |
| MAX | 266 | 222 | 110 | 192 | 71.1 | 48.7 | 41.5 | 186 | 290 | 208 | 132 | 255 |
| (WY) | 1991 | 1992 | 1993 | 1992 | 1991 | 1991 | 1993 | 1992 | 1992 | 1993 | 1992 | 1992 |
| MIN | 77.6 | 113 | 82.6 | 62.9 | 21.0 | 17.4 | 16.8 | 35.1 | 47.8 | 66.0 | 48.6 | 59.7 |
| (WY) | 1993 | 1991 | 1992 | 1991 | 1992 | 1992 | 1992 | 1991 | 1991 | 1990 | 1991 | 1990 |

SUMMARY STATISTICS

FOR 1992 CALENDAR YEAR

FOR 1993 WATER YEAR

WATER YEARS 1990 - 1993

| | | | |
|--------------------------|---------|--------|-------|
| ANNUAL TOTAL | 46830.0 | 38186 | 107 |
| ANNUAL MEAN | 128 | 105 | 134 |
| HIGHEST ANNUAL MEAN | | | 82.2 |
| LOWEST ANNUAL MEAN | | | 1991 |
| HIGHEST DAILY MEAN | 3380 | Jan 5 | 1890 |
| LOWEST DAILY MEAN | 6.3 | Apr 29 | 24 |
| ANNUAL SEVEN-DAY MINIMUM | 7.4 | Apr 25 | 27 |
| INSTANTANEOUS PEAK FLOW | | | 14600 |
| INSTANTANEOUS PEAK STAGE | | | 21.50 |
| ANNUAL RUNOFF (AC-FT) | 92890 | 75740 | 77530 |
| ANNUAL RUNOFF (CFSM) | 5.12 | 4.18 | 4.28 |
| ANNUAL RUNOFF (INCHES) | 69.68 | 56.82 | 58.16 |
| 10 PERCENT EXCEEDS | 199 | 177 | 168 |
| 50 PERCENT EXCEEDS | 75 | 78 | 58 |
| 90 PERCENT EXCEEDS | 14 | 40 | 22 |

e Estimated

RIO GRANDE DE LOIZA BASIN

50051800 RIO GRANDE DE LOIZA AT HWY 183 NEAR SAN LORENZO, PR--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORDS.-- Water years 1990 to current year.

PERIOD OF DAILY RECORD.--

SUSPENDED-SEDIMENT DISCHARGE: February 1990 to September 1993.

INSTRUMENTATION.-- DH-48 and automatic sediment sampler.

EXTREMES FOR PERIOD OF DAILY RECORD.--

SEDIMENT CONCENTRATION: Maximum daily mean, 1,570 mg/L Jun. 11, 1992; Minimum daily mean, 5 mg/L Several days.

SEDIMENT LOADS: Maximum daily mean, 46,800 tons (42,400 tonnes) Jan. 05, 1992; Minimum daily mean, 0.20 ton (0.18 tonne) May 05, 1992.

EXTREMES FOR WATER YEAR 1993.--

| Water Year | Suspended-sediment concentration (mg/L) | | Suspended-sediment discharge (tons per day) | |
|------------|---|------------------|---|---------------|
| | maximum | minimum | maximum | minimum |
| 1993 | 2,750 (July 11) | 4 (Several days) | e30,800 (July 11) | .73 (May, 23) |

SEDIMENT DISCHARGE, SUSPENDED (TONS/DAY), WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993

| DAY | MEAN DISCHARGE (CFS) | MEAN CONCENTRATION (MG/L) | SEDIMENT DISCHARGE (TONS/DAY) | MEAN DISCHARGE (CFS) | MEAN CONCENTRATION (MG/L) | SEDIMENT DISCHARGE (TONS/DAY) | MEAN DISCHARGE (CFS) | MEAN CONCENTRATION (MG/L) | SEDIMENT DISCHARGE (TONS/DAY) |
|---------|----------------------------|---------------------------------|-------------------------------------|----------------------------|---------------------------------|-------------------------------------|----------------------------|---------------------------------|-------------------------------------|
| | | | | | | | | | |
| OCTOBER | | | NOVEMBER | | | DECEMBER | | | |
| 1 | 96 | 19 | 4.8 | 74 | 74 | 16 | 226 | 448 | 396 |
| 2 | 89 | 18 | 4.3 | 55 | 55 | 8.4 | 168 | 133 | 69 |
| 3 | 87 | 21 | 4.9 | 56 | 53 | 8.2 | 188 | 142 | 81 |
| 4 | 80 | 25 | 5.4 | 143 | 135 | 63 | 141 | 46 | 19 |
| 5 | 78 | 26 | 5.4 | 84 | 82 | 20 | 119 | 11 | 3.6 |
| 6 | 134 | 110 | 81 | 164 | 163 | 86 | 110 | 8 | 2.5 |
| 7 | 85 | 64 | 17 | 135 | 115 | 48 | 102 | 7 | 2.0 |
| 8 | 75 | 13 | 2.7 | 78 | 34 | 7.7 | 97 | 7 | 2.0 |
| 9 | 73 | 13 | 2.7 | 68 | 17 | 3.0 | 94 | 8 | 2.1 |
| 10 | 69 | 13 | 2.6 | 65 | 25 | 4.5 | 91 | 6 | 1.5 |
| 11 | 67 | 13 | 2.4 | 58 | 35 | 5.9 | 87 | 4 | .94 |
| 12 | 66 | 12 | 2.2 | 54 | 37 | 5.4 | 83 | 4 | .91 |
| 13 | 61 | 12 | 1.9 | 63 | 35 | 6.1 | 85 | 4 | .93 |
| 14 | 61 | 12 | 2.0 | 54 | 35 | 5.4 | 88 | 4 | 1.1 |
| 15 | 61 | 12 | 2.0 | 113 | 96 | 47 | 97 | 7 | 1.8 |
| 16 | 62 | 13 | 2.1 | 75 | 49 | 11 | 84 | 7 | 1.8 |
| 17 | 63 | 13 | 2.3 | 114 | 135 | 49 | 82 | 8 | 1.8 |
| 18 | 65 | 19 | 3.2 | 178 | 172 | 110 | 79 | 7 | 1.5 |
| 19 | 60 | 43 | 7.1 | 161 | 154 | 76 | 77 | 5 | 1.2 |
| 20 | 71 | 71 | 15 | 126 | 69 | 25 | 75 | 4 | .94 |
| 21 | 130 | 137 | 82 | 107 | 62 | 22 | 75 | 4 | .95 |
| 22 | 92 | 83 | 28 | 105 | 63 | 17 | 85 | 6 | 1.3 |
| 23 | 65 | 22 | 3.6 | 95 | 33 | 8.7 | 78 | 6 | 1.4 |
| 24 | 77 | 48 | 20 | 108 | 85 | 29 | 76 | 5 | 1.0 |
| 25 | 140 | 134 | 60 | 79 | 25 | 6.3 | 85 | 5 | 1.2 |
| 26 | 95 | 54 | 20 | 70 | 6 | 1.2 | 184 | 165 | 129 |
| 27 | 63 | 16 | 2.7 | 130 | 95 | 57 | 125 | 157 | 57 |
| 28 | 57 | 18 | 2.7 | 443 | 467 | 1360 | 90 | 129 | 31 |
| 29 | 61 | 19 | 3.1 | 195 | 205 | 124 | 167 | 171 | 82 |
| 30 | 60 | 21 | 3.7 | 412 | 414 | 882 | 138 | 140 | 56 |
| 31 | 62 | 20 | 3.4 | --- | --- | --- | 148 | 152 | 70 |
| TOTAL | 2405 | --- | 400.2 | 3662 | --- | 3112.8 | 3424 | --- | 1022.47 |

RIO GRANDE DE LOIZA BASIN

211

50051800 RIO GRANDE DE LOIZA AT HWY 183 NEAR SAN LORENZO, PR---Continued

SEDIMENT DISCHARGE, SUSPENDED (TONS/DAY), WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993

| DAY | MEAN DISCHARGE (CFS) | MEAN CONCEN- TRATION (MG/L) | SEDIMENT DISCHARGE (TONS/DAY) | MEAN DISCHARGE (CFS) | MEAN CONCEN- TRATION (MG/L) | SEDIMENT DISCHARGE (TONS/DAY) | MEAN DISCHARGE (CFS) | MEAN CONCEN- TRATION (MG/L) | SEDIMENT DISCHARGE (TONS/DAY) |
|---------|----------------------------|--------------------------------------|-------------------------------------|----------------------------|--------------------------------------|-------------------------------------|----------------------------|--------------------------------------|-------------------------------------|
| JANUARY | | | FEBRUARY | | | MARCH | | | |
| 1 | 215 | 152 | 90 | e84 | 35 | 7.9 | 48 | 28 | 3.7 |
| 2 | 156 | 142 | 65 | e98 | 38 | 9.9 | 50 | 28 | 3.8 |
| 3 | 123 | 137 | 48 | 84 | 38 | 8.5 | 46 | 29 | 3.6 |
| 4 | 113 | 116 | 35 | 72 | 33 | 6.3 | 44 | 33 | 4.0 |
| 5 | 91 | 88 | 20 | 68 | 33 | 6.1 | 44 | 34 | 4.2 |
| 6 | 122 | 101 | 36 | 69 | 37 | 6.9 | 44 | 28 | 3.4 |
| 7 | 146 | 142 | 60 | 68 | 46 | 8.4 | 42 | 21 | 2.5 |
| 8 | 132 | 79 | 34 | 64 | 45 | 7.8 | 42 | 16 | 1.8 |
| 9 | 119 | 17 | 4.9 | 63 | 27 | 4.5 | 43 | 20 | 2.4 |
| 10 | 110 | 7 | 2.1 | 61 | 17 | 2.7 | 40 | 29 | 3.2 |
| 11 | 99 | 6 | 1.8 | 70 | 21 | 4.0 | 40 | 41 | 4.5 |
| 12 | 99 | 6 | 1.6 | 83 | 28 | 6.2 | 41 | 43 | 5.0 |
| 13 | 90 | 6 | 1.6 | e70 | 31 | e5.9 | 45 | 45 | 5.3 |
| 14 | 98 | 4 | 1.3 | e62 | 32 | e5.4 | 44 | 47 | 5.7 |
| 15 | 85 | 4 | 1.1 | e60 | 31 | e5.0 | 45 | 49 | 6.0 |
| 16 | 84 | 5 | 1.3 | e62 | 29 | e4.8 | 41 | 51 | 5.6 |
| 17 | 83 | 6 | 1.4 | e64 | 26 | e4.4 | 51 | 50 | 6.6 |
| 18 | 77 | 7 | 1.5 | e58 | 21 | e3.3 | 50 | 49 | 6.6 |
| 19 | 85 | 6 | 1.5 | 58 | 18 | 2.8 | 58 | 45 | 6.6 |
| 20 | 74 | 6 | 1.2 | 59 | 19 | 2.9 | 54 | 42 | 6.1 |
| 21 | 70 | 6 | 1.2 | 57 | 22 | 3.3 | 47 | 37 | 4.8 |
| 22 | e130 | 98 | e47 | 55 | 24 | 3.5 | 38 | 37 | 3.7 |
| 23 | e86 | 59 | e14 | 55 | 25 | 3.9 | 36 | 39 | 3.9 |
| 24 | e150 | 10 | e4.1 | 57 | 26 | 4.1 | 38 | 52 | 5.4 |
| 25 | e110 | 10 | e3.0 | 53 | 27 | 3.9 | 39 | 62 | 6.5 |
| 26 | e98 | 10 | e2.6 | 49 | 27 | 3.7 | 45 | 60 | 7.6 |
| 27 | e120 | 10 | e3.2 | 50 | 27 | 3.6 | 40 | 52 | 5.9 |
| 28 | e300 | 295 | e239 | 50 | 27 | 3.6 | 35 | 49 | 4.6 |
| 29 | e120 | 115 | e37 | --- | --- | --- | 32 | 49 | 4.3 |
| 30 | e94 | 90 | e23 | --- | --- | --- | 30 | 56 | 4.8 |
| 31 | e84 | 52 | e12 | --- | --- | --- | 29 | 79 | 6.5 |
| TOTAL | 3563 | --- | 795.4 | 1803 | --- | 143.3 | 1321 | --- | 148.6 |

e Estimated

RIO GRANDE DE LOIZA BASIN

50051800 RIO GRANDE DE LOIZA AT HWY 183 NEAR SAN LORENZO, PR---Continued

SEDIMENT DISCHARGE, SUSPENDED (TONS/DAY), WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993

| DAY | MEAN DISCHARGE (CFS) | MEAN CONCEN- TRATION (MG/L) | SEDIMENT DISCHARGE (TONS/DAY) | MEAN DISCHARGE (CFS) | MEAN CONCEN- TRATION (MG/L) | SEDIMENT DISCHARGE (TONS/DAY) | MEAN DISCHARGE (CFS) | MEAN CONCEN- TRATION (MG/L) | SEDIMENT DISCHARGE (TONS/DAY) |
|-------|----------------------------|--------------------------------------|-------------------------------------|----------------------------|--------------------------------------|-------------------------------------|----------------------------|--------------------------------------|-------------------------------------|
| APRIL | | | MAY | | | JUNE | | | |
| 1 | 27 | 97 | 6.9 | 250 | 248 | 307 | 50 | 8 | 1.1 |
| 2 | 28 | 87 | 6.9 | 306 | 312 | 516 | 46 | 13 | 1.5 |
| 3 | 28 | 62 | 4.9 | 138 | 109 | 54 | 38 | 15 | 1.5 |
| 4 | 29 | 47 | 3.6 | 81 | 78 | 18 | 38 | 15 | 1.5 |
| 5 | 26 | 26 | 1.9 | 90 | 85 | 21 | 41 | 12 | 1.3 |
| 6 | 27 | 60 | 4.4 | 93 | 56 | 17 | 41 | 9 | .99 |
| 7 | 24 | 107 | 7.4 | 56 | 23 | 3.7 | 39 | 8 | .84 |
| 8 | 29 | 124 | 10 | 50 | 17 | 2.4 | 41 | 10 | 1.1 |
| 9 | 45 | 110 | 13 | 191 | 181 | 141 | 45 | 15 | 1.8 |
| 10 | 36 | 88 | 8.3 | 133 | 76 | 29 | 61 | 28 | 5.4 |
| 11 | 27 | 81 | 6.1 | 73 | 41 | 9.1 | 64 | 38 | 7.7 |
| 12 | 26 | 75 | 5.3 | 56 | 21 | 3.3 | 43 | 20 | 2.3 |
| 13 | 28 | 78 | 6.0 | 48 | 20 | 2.7 | 68 | 53 | 15 |
| 14 | 46 | 110 | 13 | 362 | 326 | 865 | 211 | 208 | 179 |
| 15 | 34 | 151 | 14 | 145 | 143 | 63 | 226 | 220 | 175 |
| 16 | 31 | 183 | 16 | 89 | 57 | 14 | 154 | 127 | 66 |
| 17 | e117 | 178 | e56 | 70 | 24 | 4.7 | 79 | 68 | 14 |
| 18 | e30 | 173 | e16 | 65 | 17 | 2.9 | 184 | 250 | 543 |
| 19 | e36 | 170 | e20 | 57 | 14 | 2.2 | e1300 | 1350 | e6150 |
| 20 | e32 | 170 | e17 | 58 | 11 | 1.6 | e668 | 563 | 1350 |
| 21 | e35 | 174 | e20 | 56 | 8 | 1.4 | e327 | 72 | e71 |
| 22 | e27 | 187 | e16 | 53 | 6 | .96 | e264 | 233 | e183 |
| 23 | 37 | 148 | 13 | 52 | 5 | .73 | e124 | 110 | e39 |
| 24 | 25 | 169 | 12 | 53 | 6 | .94 | e109 | 66 | e19 |
| 25 | 24 | 122 | 8.5 | 61 | 10 | 1.7 | e81 | 43 | e9.3 |
| 26 | 34 | 107 | 10 | 97 | 38 | 9.7 | e71 | 23 | e4.5 |
| 27 | 50 | 105 | 14 | 105 | 78 | 32 | e64 | 8 | e1.5 |
| 28 | 29 | 101 | 8.2 | 86 | 74 | 21 | e59 | 8 | e1.2 |
| 29 | 139 | 134 | 131 | 57 | 19 | 3.0 | e58 | 24 | e4.3 |
| 30 | 139 | 176 | 71 | 50 | 7 | 1.0 | e90 | 81 | e20 |
| 31 | --- | --- | --- | 46 | 6 | .75 | --- | --- | --- |
| TOTAL | 1245 | --- | 540.4 | 3127 | --- | 2150.78 | 4684 | --- | 8871.83 |

e Estimated

RIO GRANDE DE LOIZA BASIN

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50051800 RIO GRANDE DE LOIZA AT HWY 183 NEAR SAN LORENZO, PR---Continued

SEDIMENT DISCHARGE, SUSPENDED (TONS/DAY), WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993

| DAY | MEAN DISCHARGE (CFS) | MEAN CONCEN- TRATION (MG/L) | SEDIMENT DISCHARGE (TONS/DAY) | MEAN DISCHARGE (CFS) | MEAN CONCEN- TRATION (MG/L) | SEDIMENT DISCHARGE (TONS/DAY) | MEAN DISCHARGE (CFS) | MEAN CONCEN- TRATION (MG/L) | SEDIMENT DISCHARGE (TONS/DAY) |
|-------|----------------------------|--------------------------------------|-------------------------------------|----------------------------|--------------------------------------|-------------------------------------|----------------------------|--------------------------------------|-------------------------------------|
| | JULY | | | AUGUST | | | SEPTEMBER | | |
| 1 | e59 | 80 | e13 | 103 | 5 | 1.5 | 84 | 16 | 3.8 |
| 2 | e56 | 63 | e9.7 | 97 | 5 | 1.3 | 86 | 23 | 5.8 |
| 3 | e101 | 49 | e13 | 89 | 5 | 1.2 | 103 | 40 | 12 |
| 4 | e73 | 36 | e7.8 | 85 | 5 | 1.1 | 70 | 25 | 4.8 |
| 5 | e54 | 25 | e3.5 | 83 | 5 | 1.1 | 105 | 60 | 25 |
| 6 | e47 | 18 | e2.2 | 80 | 6 | 1.4 | 82 | 111 | 27 |
| 7 | e55 | 35 | e7.6 | 77 | 9 | 2.0 | 65 | 56 | 10 |
| 8 | e95 | 86 | e24 | 81 | 11 | 2.4 | 102 | 86 | 35 |
| 9 | e54 | 31 | e4.9 | 74 | 15 | 2.9 | 107 | 135 | 45 |
| 10 | e44 | 20 | e2.3 | 78 | 19 | 3.7 | 204 | 153 | 97 |
| 11 | e1890 | 2750 | e30800 | 85 | 55 | 15 | 124 | 74 | 28 |
| 12 | e262 | 315 | e244 | 76 | 38 | 9.1 | 82 | 41 | 8.9 |
| 13 | e204 | 70 | e39 | 67 | 19 | 3.4 | 74 | 27 | 5.4 |
| 14 | 175 | 31 | 15 | 62 | 17 | 2.8 | 73 | 20 | 3.8 |
| 15 | 155 | 11 | 4.5 | 70 | 40 | 9.3 | 67 | 17 | 3.2 |
| 16 | 237 | 237 | 187 | 449 | 501 | 936 | 137 | 109 | 52 |
| 17 | 156 | 39 | 18 | 177 | 51 | 29 | 81 | 56 | 12 |
| 18 | 137 | 17 | 6.1 | 103 | 20 | 5.6 | 174 | 176 | 197 |
| 19 | 129 | 13 | 4.3 | 87 | 21 | 4.8 | 95 | 115 | 32 |
| 20 | 120 | 9 | 2.9 | 81 | 21 | 4.5 | 96 | 67 | 16 |
| 21 | 118 | 8 | 2.5 | 78 | 20 | 4.3 | 69 | 76 | 15 |
| 22 | 436 | 1430 | 7150 | 81 | 30 | 7.5 | 67 | 65 | 12 |
| 23 | 379 | 419 | 443 | 210 | 168 | 114 | 264 | 270 | 899 |
| 24 | 322 | 216 | 196 | 152 | 162 | 74 | 166 | 166 | 91 |
| 25 | 234 | 58 | 42 | 99 | 50 | 14 | 92 | 61 | 16 |
| 26 | 197 | 33 | 22 | 87 | 19 | 4.7 | 79 | 21 | 4.7 |
| 27 | 191 | 88 | 50 | 79 | 17 | 3.5 | 69 | 12 | 2.2 |
| 28 | 140 | 41 | 16 | 76 | 14 | 2.7 | 73 | 15 | 3.3 |
| 29 | 122 | 20 | 6.7 | 72 | 11 | 2.0 | 185 | 196 | 139 |
| 30 | 110 | 8 | 2.5 | 68 | 10 | 1.8 | 223 | 219 | 147 |
| 31 | 105 | 6 | 1.7 | 91 | 12 | 3.0 | --- | --- | --- |
| TOTAL | 6457 | --- | 39341.2 | 3197 | --- | 1269.6 | 3298 | --- | 1952.9 |
| YEAR | 38186 | | 59749.48 | | | | | | |

e Estimated

RIO GRANDE DE LOIZA BASIN

50051800 RIO GRANDE DE LOIZA AT HWY 183 NEAR SAN LORENZO, PR--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993

PARTICLE-SIZE DISTRIBUTION OF SUSPENDED SEDIMENT

| DATE | TIME | DIS- CHARGE, INST. CUBIC FEET PER SECOND | SEDI- MENT, DIS- CHARGE, SUS- PENDED (MG/L) | SEDI- MENT, DIS- CHARGE, SUS- PENDED (T/DAY) | SED. SUSP. FALL DIAM. PERCENT FINER THAN .002 MM | SED. SUSP. FALL DIAM. PERCENT FINER THAN .004 MM | SED. SUSP. FALL DIAM. PERCENT FINER THAN .008 MM |
|----------|------|--|---|--|---|---|---|
| NOV 1992 | | | | | | | |
| 30... | 0940 | 290 | 3980 | 3120 | 49 | 54 | 57 |
| DEC | | | | | | | |
| 01... | 1401 | 583 | 33000 | 51900 | 7 | 8 | 9 |
| MAY 1993 | | | | | | | |
| 14... | 1020 | 1820 | 5580 | 27400 | 25 | 30 | 40 |
| JUL | | | | | | | |
| 11... | 1150 | 2600 | 4570 | 32100 | 26 | 31 | 35 |
| 22... | 1830 | 4230 | 2670 | 30500 | 36 | 40 | 44 |
| SEP | | | | | | | |
| 23... | 1815 | 2930 | 22500 | 178000 | 10 | 12 | 14 |

| DATE | SED. SUSP. FALL DIAM. PERCENT FINER THAN .016 MM | SED. SUSP. FALL DIAM. PERCENT FINER THAN .031 MM | SED. SUSP. SIEVE DIAM. PERCENT FINER THAN .062 MM | SED. SUSP. SIEVE DIAM. PERCENT FINER THAN .125 MM | SED. SUSP. SIEVE DIAM. PERCENT FINER THAN .250 MM | SED. SUSP. SIEVE DIAM. PERCENT FINER THAN .500 MM | SED. SUSP. SIEVE DIAM. PERCENT FINER THAN 1.00 MM |
|----------|---|---|--|--|--|--|--|
| NOV 1992 | | | | | | | |
| 30... | 56 | 72 | 92 | 98 | 99.4 | 99.7 | 99.8 |
| DEC | | | | | | | |
| 01... | 11 | 21 | 40 | 74 | 93 | 99.6 | 100 |
| MAY 1993 | | | | | | | |
| 14... | 54 | 71 | 86 | 96 | 99 | 99.8 | 100 |
| JUL | | | | | | | |
| 11... | 45 | 60 | 74 | 93 | 97 | 99 | 99 |
| 22... | 51 | 59 | 71 | 88 | 95 | 99 | 100 |
| SEP | | | | | | | |
| 23... | 18 | 25 | 40 | 67 | 88 | 98 | 100 |

RIO GRANDE DE LOIZA BASIN

50051800 RIO GRANDE DE LOIZA AT HWY 183 NEAR SAN LORENZO, PR--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993

SILT AND CLAY PERCENT OF SUSPENDED SEDIMENT

| DATE | TIME | STREAM- FLOW, INSTAN- TANEOUS (CFS) | SEDI- MENT, SUS- PENDEED (MG/L) | SEDI- MENT, DIS- CHARGE, SUS- PENDEED (T/DAY) | SED. SUSP. SIEVE DIAM. PERCENT FINER THAN .062 MM |
|----------|------|---|---|---|--|
| NOV 1992 | | | | | |
| 18... | 0935 | 83 | 351 | 79 | 99 |
| DEC | | | | | |
| 01... | 1516 | 489 | 1640 | 2160 | 83 |
| JAN 1993 | | | | | |
| 29... | 1000 | 120 | 2670 | 865 | 99 |
| APR | | | | | |
| 19... | 0940 | 44 | 368 | 44 | 94 |
| JUN | | | | | |
| 14... | 0940 | 136 | 3110 | 1140 | 93 |
| 18... | 2330 | 1590 | 4980 | 21380 | 55 |
| 19... | 0530 | 945 | 498 | 1270 | 89 |
| JUL | | | | | |
| 11... | 0930 | 2050 | 1730 | 9580 | 74 |
| 22... | 2030 | 909 | 6680 | 16400 | 57 |
| SEP | | | | | |
| 23... | 1815 | 2930 | 13000 | 102800 | 48 |

RIO GRANDE DE LOIZA BASIN

50053025 RIO TURABO ABOVE BORINQUEN, PR

LOCATION.--Lat 18°09'35", long 66°02'26", Hydrologic Unit 21010005, on left bank at Highway 765, 1.2 mi (1.9 km) south of Villa Borinquen, 8.1 mi (13.0 km) upstream from Río Grande de Loiza.

DRAINAGE AREA.--7.14 mi² (18.49 km²).

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--January 1990 to current year.

GAGE.--Water-stage recorder and crest-stage gage. Elevation of gage is 492 ft (150 m), from topographic map.

REMARKS.--Records fair. Gage-height and precipitation satellite telemetry at station.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993
DAILY MEAN VALUES

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|------|------|-------|
| 1 | 12 | 8.1 | 37 | 47 | 10 | 7.1 | 5.7 | 126 | 11 | 12 | 21 | 14 |
| 2 | 12 | 7.4 | 20 | 34 | 11 | 7.4 | 85.7 | 116 | 10 | 13 | 19 | 14 |
| 3 | 11 | 7.0 | 25 | 22 | 11 | 7.1 | 6.1 | 39 | 9.3 | 32 | 17 | 14 |
| 4 | 10 | 21 | 17 | 17 | 10 | 7.4 | 6.1 | 17 | 9.1 | 16 | 16 | 12 |
| 5 | 10 | 11 | 14 | 15 | 9.9 | 7.3 | 5.7 | 14 | 8.7 | 12 | 15 | 13 |
| 6 | 47 | 49 | 12 | 16 | 9.5 | 6.8 | 5.8 | 12 | 8.7 | 11 | 14 | 12 |
| 7 | 17 | 22 | 11 | 26 | 9.3 | 6.6 | 5.7 | 9.9 | 8.7 | 11 | 14 | 10 |
| 8 | 13 | 10 | 10 | 17 | 9.2 | 6.5 | 13 | 12 | 9.4 | 18 | 14 | 15 |
| 9 | 12 | 9.5 | 9.6 | 18 | 9.0 | 6.5 | 15 | 22 | 9.3 | 12 | 13 | 12 |
| 10 | 11 | 13 | 9.4 | 14 | 8.6 | 6.4 | 12 | 15 | 11 | 11 | 14 | 42 |
| 11 | 10 | 9.0 | 8.8 | 13 | 9.4 | 6.8 | 8.5 | 12 | 10 | 510 | 15 | 15 |
| 12 | 10 | 8.6 | 8.3 | 12 | 11 | 7.1 | 7.6 | 9.9 | 8.5 | 92 | 13 | 11 |
| 13 | 9.3 | 8.5 | 8.3 | 11 | 11 | 7.1 | 20 | 9.1 | 11 | 42 | 12 | 10 |
| 14 | 9.3 | 7.7 | 13 | 12 | 9.4 | 6.8 | 12 | 290 | 36 | 31 | 12 | 9.8 |
| 15 | 9.2 | 9.1 | 11 | 11 | 8.9 | 8.0 | 17 | 40 | 60 | 26 | 15 | 13 |
| 16 | 10 | 9.0 | 8.5 | 10 | 8.6 | 7.1 | 10 | 20 | 29 | 48 | 199 | 12 |
| 17 | 8.7 | 8.4 | 8.2 | 10 | 8.0 | 11 | 11 | 17 | 13 | 23 | 32 | 9.5 |
| 18 | 8.6 | 21 | 8.1 | 10 | 8.6 | 9.3 | 6.7 | 15 | 27 | 20 | 20 | 8.5 |
| 19 | 8.4 | 13 | 8.5 | 11 | 8.3 | 13 | 6.2 | 14 | 276 | 17 | 17 | 7.5 |
| 20 | 7.9 | 11 | 7.7 | 9.7 | 8.3 | 9.0 | 6.5 | 13 | 115 | 16 | 14 | 6.8 |
| 21 | 7.4 | 9.3 | 7.6 | 9.1 | 8.9 | 7.7 | 6.4 | 12 | 33 | 15 | 13 | 6.9 |
| 22 | 9.2 | 11 | 13 | 15 | 8.0 | 6.9 | 6.0 | 12 | 105 | 94 | 15 | 6.4 |
| 23 | 8.7 | 9.7 | 8.8 | 13 | 8.0 | 6.8 | 6.2 | 13 | 35 | 139 | 43 | 36 |
| 24 | 8.8 | 9.0 | 8.6 | 10 | 7.7 | 6.8 | 5.6 | 12 | 25 | 204 | 26 | 13 |
| 25 | 10 | 8.4 | 10 | 28 | 7.4 | 6.9 | 6.0 | 16 | 19 | 70 | 18 | 7.5 |
| 26 | 8.6 | 7.9 | 60 | 13 | 7.7 | 7.4 | 8.1 | 33 | 16 | 48 | 16 | 6.6 |
| 27 | 7.6 | 64 | 19 | 13 | 7.4 | 6.8 | 7.5 | 20 | 14 | 38 | 14 | 6.5 |
| 28 | 7.3 | 116 | 12 | 15 | 7.4 | 6.7 | 10 | 16 | 13 | 31 | 14 | 14 |
| 29 | 7.1 | 22 | 16 | 22 | --- | 6.2 | 48 | 12 | 13 | 30 | 13 | 54 |
| 30 | 7.0 | 41 | 15 | 13 | --- | 5.8 | 32 | 11 | 23 | 27 | 13 | 23 |
| 31 | 10 | --- | 45 | 11 | --- | 5.7 | --- | 10 | --- | 24 | 17 | --- |
| TOTAL | 338.1 | 561.6 | 470.4 | 497.8 | 251.5 | 228.0 | 322.1 | 989.9 | 976.7 | 1693 | 708 | 435.0 |
| MEAN | 10.9 | 18.7 | 15.2 | 16.1 | 8.98 | 7.35 | 10.7 | 31.9 | 32.6 | 54.6 | 22.8 | 14.5 |
| MAX | 47 | 116 | 60 | 47 | 11 | 13 | 48 | 290 | 276 | 510 | 199 | 54 |
| MIN | 7.0 | 7.0 | 7.6 | 9.1 | 7.4 | 5.7 | 5.6 | 9.1 | 8.5 | 11 | 12 | 6.4 |
| AC-FT | 671 | 1110 | 933 | 987 | 499 | 452 | 639 | 1960 | 1940 | 3360 | 1400 | 863 |
| CFSM | 1.53 | 2.62 | 2.13 | 2.25 | 1.26 | 1.03 | 1.50 | 4.47 | 4.56 | 7.65 | 3.20 | 2.03 |
| IN. | 1.76 | 2.93 | 2.45 | 2.59 | 1.31 | 1.19 | 1.68 | 5.16 | 5.09 | 8.82 | 3.69 | 2.27 |

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1990 - 1993, BY WATER YEAR (WY)

| | MEAN | 23.3 | 25.1 | 17.7 | 21.7 | 12.6 | 9.83 | 8.21 | 20.5 | 27.8 | | 19.3 | 19.7 |
|------|------|------|------|------|------|------|------|------|------|------|------|------|------|
| MAX | 48.2 | 37.9 | 23.1 | 47.5 | 18.1 | 11.6 | 10.7 | 31.9 | 48.9 | 54.6 | 22.8 | 28.1 | |
| (WY) | 1991 | 1992 | 1991 | 1992 | 1991 | 1991 | 1993 | 1993 | 1992 | 1993 | 1993 | 1992 | |
| MIN | 10.8 | 18.7 | 14.9 | 7.85 | 8.93 | 7.35 | 6.18 | 8.99 | 9.59 | 15.6 | 10.8 | 14.1 | |
| (WY) | 1992 | 1991 | 1992 | 1990 | 1990 | 1993 | 1990 | 1990 | 1991 | 1992 | 1991 | 1990 | |

SUMMARY STATISTICS

FOR 1992 CALENDAR YEAR

FOR 1993 WATER YEAR

WATER YEARS 1990 - 1993

| | | | |
|--------------------------|--------|--------|------------------|
| ANNUAL TOTAL | 8212.6 | 7472.1 | |
| ANNUAL MEAN | 22.4 | 20.5 | 20.9 |
| HIGHEST ANNUAL MEAN | | | 24.0 |
| LOWEST ANNUAL MEAN | | | 18.1 |
| HIGHEST DAILY MEAN | 605 | Jan 5 | 605 Jan 5 1992 |
| LOWEST DAILY MEAN | 5.1 | Apr 29 | 4.1 May 23 1990 |
| ANNUAL SEVEN-DAY MINIMUM | 5.5 | Apr 24 | 4.4 Aug 8 1991 |
| INSTANTANEOUS PEAK FLOW | | | 3590 Jan 5 1992 |
| INSTANTANEOUS PEAK STAGE | | | 14.37 Jan 5 1992 |
| INSTANTANEOUS LOW FLOW | | | 3.9 May 22 1990 |
| ANNUAL RUNOFF (AC-FT) | 16290 | 14820 | 15110 |
| ANNUAL RUNOFF (CFSM) | 3.14 | 2.87 | 2.92 |
| ANNUAL RUNOFF (INCHES) | 42.79 | 38.93 | 39.68 |
| 10 PERCENT EXCEEDS | 38 | 34 | 32 |
| 50 PERCENT EXCEEDS | 12 | 11 | 11 |
| 90 PERCENT EXCEEDS | 7.3 | 7.0 | 6.0 |

RIO GRANDE DE LOIZA BASIN

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50053025 RIO TURABO ABOVE BORINQUEN, PR--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORDS.-- Water years 1990 to current year.

PERIOD OF DAILY RECORD.--

SUSPENDED-SEDIMENT DISCHARGE: January 1990 to September 1993.

INSTRUMENTATION.-- DH-48 and automatic sediment sampler.

EXTREMES FOR PERIOD OF DAILY RECORD.--

SEDIMENT CONCENTRATION: Maximum daily mean, 1,030 mg/L July 11, 1993; Minimum daily mean, 1 mg/L Several days.

SEDIMENT LOADS: Maximum daily mean, 4,920 tons (4,460 tonnes) Jan. 05, 1992; Minimum daily mean, 0.01 ton (0.01 tonne) Several days.

EXTREMES FOR WATER YEAR 1993.--

| Water Year | Suspended-sediment concentration (mg/L) maximum | minimum | Suspended-sediment discharge (tons per day) maximum | minimum |
|------------|--|------------------|--|--------------------|
| 1993 | 1,030 (July 11) | 2 (Several days) | 3,380 (July 11) | .04 (Several days) |

SEDIMENT DISCHARGE, SUSPENDED (TONS/DAY), WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993

| DAY | MEAN DISCHARGE (CFS) | MEAN CONCENTRATION (MG/L) | SEDIMENT DISCHARGE (TONS/DAY) | MEAN DISCHARGE (CFS) | MEAN CONCENTRATION (MG/L) | SEDIMENT DISCHARGE (TONS/DAY) | MEAN DISCHARGE (CFS) | MEAN CONCENTRATION (MG/L) | SEDIMENT DISCHARGE (TONS/DAY) |
|-------|----------------------------|---------------------------------|-------------------------------------|----------------------------|---------------------------------|-------------------------------------|----------------------------|---------------------------------|-------------------------------------|
| | | | | | | | | | |
| 1 | 12 | 20 | .67 | 8.1 | 12 | .28 | 37 | 61 | 11 |
| 2 | 12 | 20 | .62 | 7.4 | 12 | .22 | 20 | 28 | 1.7 |
| 3 | 11 | 20 | .57 | 7.0 | 12 | .23 | 25 | 28 | 2.2 |
| 4 | 10 | 20 | .54 | 21 | 26 | 2.3 | 17 | 14 | .67 |
| 5 | 10 | 20 | .57 | 11 | 8 | .28 | 14 | 12 | .42 |
| 6 | 47 | 296 | 96 | 49 | 76 | 20 | 12 | 11 | .34 |
| 7 | 17 | 86 | 4.4 | 22 | 70 | 5.1 | 11 | 10 | .29 |
| 8 | 13 | 24 | .87 | 10 | 41 | 1.2 | 10 | 9 | .23 |
| 9 | 12 | 12 | .37 | 9.5 | 19 | .47 | 9.6 | 8 | .20 |
| 10 | 11 | 12 | .34 | 13 | 15 | .54 | 9.4 | 9 | .22 |
| 11 | 10 | 14 | .38 | 9.0 | 14 | .32 | 8.8 | 10 | .23 |
| 12 | 10 | 17 | .43 | 8.6 | 12 | .26 | 8.3 | 10 | .22 |
| 13 | 9.3 | 18 | .46 | 8.5 | 12 | .25 | 8.3 | 10 | .22 |
| 14 | 9.3 | 21 | .52 | 7.7 | 12 | .24 | 13 | 14 | .70 |
| 15 | 9.2 | 24 | .61 | 9.1 | 14 | .32 | 11 | 14 | .44 |
| 16 | 10 | 26 | .63 | 9.0 | 17 | .41 | 8.5 | 11 | .24 |
| 17 | 8.7 | 26 | .60 | 8.4 | 18 | .40 | 8.2 | 10 | .21 |
| 18 | 8.6 | 24 | .55 | 21 | 35 | 4.0 | 8.1 | 8 | .19 |
| 19 | 8.4 | 21 | .48 | 13 | 14 | .53 | 8.5 | 7 | .16 |
| 20 | 7.9 | 17 | .36 | 11 | 12 | .34 | 7.7 | 5 | .11 |
| 21 | 7.4 | 12 | .24 | 9.3 | 16 | .40 | 7.6 | 4 | .08 |
| 22 | 9.2 | 9 | .22 | 11 | 22 | .62 | 13 | 17 | .88 |
| 23 | 8.7 | 8 | .22 | 9.7 | 23 | .63 | 8.8 | 19 | .47 |
| 24 | 8.8 | 9 | .21 | 9.0 | 21 | .49 | 8.6 | 17 | .38 |
| 25 | 10 | 9 | .28 | 8.4 | 20 | .45 | 10 | 15 | .40 |
| 26 | 8.6 | 13 | .30 | 7.9 | 19 | .39 | 60 | 128 | 66 |
| 27 | 7.6 | 18 | .37 | 64 | 188 | 111 | 19 | 33 | 1.9 |
| 28 | 7.3 | 20 | .38 | 116 | 246 | 384 | 12 | 29 | .97 |
| 29 | 7.1 | 18 | .33 | 22 | 25 | 1.8 | 16 | 28 | 1.2 |
| 30 | 7.0 | 13 | .24 | 41 | 66 | 9.4 | 15 | 30 | 1.3 |
| 31 | 10 | 12 | .43 | --- | --- | --- | 45 | 73 | 14 |
| TOTAL | 338.1 | --- | 113.19 | 561.6 | --- | 546.87 | 470.4 | --- | 107.57 |

RIO GRANDE DE LOIZA BASIN

50053025 RIO TURABO ABOVE BORINQUEN, PR---Continued

SEDIMENT DISCHARGE, SUSPENDED (TONS/DAY), WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993

| DAY | MEAN DISCHARGE (CFS) | MEAN CONCEN- TRATION (MG/L) | SEDIMENT DISCHARGE (TONS/DAY) | MEAN DISCHARGE (CFS) | MEAN CONCEN- TRATION (MG/L) | SEDIMENT DISCHARGE (TONS/DAY) | MEAN DISCHARGE (CFS) | MEAN CONCEN- TRATION (MG/L) | SEDIMENT DISCHARGE (TONS/DAY) |
|---------|----------------------------|--------------------------------------|-------------------------------------|----------------------------|--------------------------------------|-------------------------------------|----------------------------|--------------------------------------|-------------------------------------|
| JANUARY | | | FEBRUARY | | | MARCH | | | |
| 1 | 47 | 73 | 12 | 10 | 5 | .15 | 7.1 | 4 | .08 |
| 2 | 34 | 37 | 4.5 | 11 | 3 | .08 | 7.4 | 3 | .06 |
| 3 | 22 | 23 | 1.4 | 11 | 2 | .07 | 7.1 | 3 | .06 |
| 4 | 17 | 17 | .82 | 10 | 3 | .08 | 7.4 | 2 | .05 |
| 5 | 15 | 12 | .48 | 9.9 | 3 | .08 | 7.3 | 2 | .04 |
| 6 | 16 | 8 | .32 | 9.5 | 3 | .09 | 6.8 | 2 | .04 |
| 7 | 26 | 30 | 4.4 | 9.3 | 4 | .11 | 6.6 | 2 | .04 |
| 8 | 17 | 18 | .93 | 9.2 | 5 | .13 | 6.5 | 2 | .04 |
| 9 | 18 | 11 | .53 | 9.0 | 6 | .14 | 6.5 | 2 | .04 |
| 10 | 14 | 14 | .54 | 8.6 | 6 | .15 | 6.4 | 2 | .04 |
| 11 | 13 | 9 | .31 | 9.4 | 7 | .17 | 6.8 | 2 | .04 |
| 12 | 12 | 8 | .28 | 11 | 6 | .20 | 7.1 | 2 | .04 |
| 13 | 11 | 8 | .25 | 11 | 5 | .17 | 7.1 | 2 | .05 |
| 14 | 12 | 8 | .25 | 9.4 | 4 | .11 | 6.8 | 3 | .06 |
| 15 | 11 | 8 | .24 | 8.9 | 4 | .11 | 8.0 | 3 | .06 |
| 16 | 10 | 9 | .24 | 8.6 | 4 | .11 | 7.1 | 3 | .06 |
| 17 | 10 | 10 | .26 | 8.0 | 8 | .17 | 11 | 3 | .08 |
| 18 | 10 | 11 | .31 | 8.6 | 8 | .20 | 9.3 | 3 | .08 |
| 19 | 11 | 10 | .26 | 8.3 | 5 | .12 | 13 | 3 | .12 |
| 20 | 9.7 | 9 | .23 | 8.3 | 3 | .07 | 9.0 | 3 | .07 |
| 21 | 9.1 | 7 | .17 | 8.9 | 3 | .08 | 7.7 | 3 | .06 |
| 22 | 15 | 16 | 1.3 | 8.0 | 3 | .07 | 6.9 | 3 | .06 |
| 23 | 13 | 19 | .74 | 8.0 | 4 | .08 | 6.8 | 3 | .07 |
| 24 | 10 | 16 | .45 | 7.7 | 4 | .08 | 6.8 | 4 | .09 |
| 25 | 28 | 50 | 7.4 | 7.4 | 4 | .08 | 6.9 | 5 | .10 |
| 26 | 13 | 26 | .97 | 7.7 | 4 | .08 | 7.4 | 6 | .12 |
| 27 | 13 | 17 | .55 | 7.4 | 4 | .08 | 6.8 | 7 | .14 |
| 28 | 15 | 11 | .40 | 7.4 | 4 | .08 | 6.7 | 9 | .15 |
| 29 | 22 | 25 | 1.7 | --- | --- | --- | 6.2 | 8 | .13 |
| 30 | 13 | 17 | .66 | --- | --- | --- | 5.8 | 7 | .10 |
| 31 | 11 | 8 | .26 | --- | --- | --- | 5.7 | 6 | .09 |
| TOTAL | 497.8 | --- | 43.15 | 251.5 | --- | 3.14 | 228.0 | --- | 2.26 |

RIO GRANDE DE LOIZA BASIN

50053025 RIO TURABO ABOVE BORINQUEN, PR---Continued

SEDIMENT DISCHARGE, SUSPENDED (TONS/DAY), WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993

| DAY | MEAN DISCHARGE (CFS) | MEAN CONCEN- TRATION (MG/L) | SEDIMENT DISCHARGE (TONS/DAY) | MEAN DISCHARGE (CFS) | MEAN CONCEN- TRATION (MG/L) | SEDIMENT DISCHARGE (TONS/DAY) | MEAN DISCHARGE (CFS) | MEAN CONCEN- TRATION (MG/L) | SEDIMENT DISCHARGE (TONS/DAY) |
|-------|----------------------------|--------------------------------------|-------------------------------------|----------------------------|--------------------------------------|-------------------------------------|----------------------------|--------------------------------------|-------------------------------------|
| APRIL | | | MAY | | | JUNE | | | |
| 1 | 5.7 | 5 | .09 | 126 | 445 | 400 | 11 | 6 | .16 |
| 2 | 5.7 | 6 | .10 | 116 | 279 | 197 | 10 | 6 | .16 |
| 3 | 6.1 | 7 | .12 | 39 | 55 | 8.0 | 9.3 | 6 | .16 |
| 4 | 6.1 | 9 | .15 | 17 | 16 | .81 | 9.1 | 9 | .22 |
| 5 | 5.7 | 11 | .17 | 14 | 11 | .43 | 8.7 | 8 | .20 |
| 6 | 5.8 | 12 | .17 | 12 | 10 | .34 | 8.7 | 5 | .12 |
| 7 | 5.7 | 7 | .10 | 9.9 | 7 | .20 | 8.7 | 5 | .12 |
| 8 | 13 | 12 | .80 | 12 | 11 | .78 | 9.4 | 5 | .12 |
| 9 | 15 | 19 | 1.7 | 22 | 29 | 2.0 | 9.3 | 5 | .12 |
| 10 | 12 | 10 | .51 | 15 | 15 | .68 | 11 | 5 | .14 |
| 11 | 8.5 | 6 | .16 | 12 | 10 | .33 | 10 | 5 | .14 |
| 12 | 7.6 | 4 | .09 | 9.9 | 7 | .19 | 8.5 | 5 | .12 |
| 13 | 20 | 25 | 4.6 | 9.1 | 8 | .23 | 11 | 5 | .16 |
| 14 | 12 | 10 | .35 | 290 | 557 | 1340 | 36 | 52 | 11 |
| 15 | 17 | 18 | 1.9 | 40 | 52 | 7.0 | 60 | 112 | 57 |
| 16 | 10 | 10 | .28 | 20 | 6 | .38 | 29 | 38 | 5.1 |
| 17 | 11 | 15 | .47 | 17 | 2 | .09 | 13 | 11 | .42 |
| 18 | 6.7 | 15 | .26 | 15 | 2 | .08 | 27 | 49 | 30 |
| 19 | 6.2 | 14 | .23 | 14 | 2 | .08 | 276 | 799 | 829 |
| 20 | 6.5 | 11 | .20 | 13 | 2 | .07 | 115 | 242 | 124 |
| 21 | 6.4 | 10 | .16 | 12 | 2 | .06 | 33 | 49 | 5.2 |
| 22 | 6.0 | 10 | .16 | 12 | 2 | .08 | 105 | 227 | 116 |
| 23 | 6.2 | 10 | .16 | 13 | 4 | .17 | 35 | 21 | 2.4 |
| 24 | 5.6 | 10 | .15 | 12 | 6 | .21 | 25 | 11 | .73 |
| 25 | 6.0 | 8 | .14 | 16 | 14 | .70 | 19 | 8 | .44 |
| 26 | 8.1 | 8 | .19 | 33 | 52 | 15 | 16 | 8 | .33 |
| 27 | 7.5 | 6 | .12 | 20 | 23 | 1.6 | 14 | 12 | .42 |
| 28 | 10 | 11 | .56 | 16 | 13 | .65 | 13 | 17 | .58 |
| 29 | 48 | 103 | 62 | 12 | 6 | .20 | 13 | 20 | .84 |
| 30 | 32 | 44 | 11 | 11 | 6 | .18 | 23 | 27 | 2.2 |
| 31 | --- | --- | --- | 10 | 6 | .17 | --- | --- | --- |
| TOTAL | 322.1 | --- | 87.09 | 989.9 | --- | 1977.71 | 976.7 | --- | 1187.60 |

RIO GRANDE DE LOIZA BASIN

50053025 RIO TURABO ABOVE BORINQUEN, PR---Continued

SEDIMENT DISCHARGE, SUSPENDED (TONS/DAY), WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993

| DAY | MEAN DISCHARGE (CFS) | MEAN CONCEN- TRATION (MG/L) | SEDIMENT DISCHARGE (TONS/DAY) | MEAN DISCHARGE (CFS) | MEAN CONCEN- TRATION (MG/L) | SEDIMENT DISCHARGE (TONS/DAY) | MEAN DISCHARGE (CFS) | MEAN CONCEN- TRATION (MG/L) | SEDIMENT DISCHARGE (TONS/DAY) |
|-------|----------------------------|--------------------------------------|-------------------------------------|----------------------------|--------------------------------------|-------------------------------------|----------------------------|--------------------------------------|-------------------------------------|
| JULY | | | AUGUST | | | SEPTEMBER | | | |
| 1 | 12 | 10 | .33 | 21 | 16 | .84 | 14 | 7 | .27 |
| 2 | 13 | 10 | .33 | 19 | 17 | .90 | 14 | 6 | .23 |
| 3 | 32 | 43 | 6.5 | 17 | 16 | .78 | 14 | 4 | .18 |
| 4 | 16 | 19 | .96 | 16 | 14 | .58 | 12 | 4 | .13 |
| 5 | 12 | 12 | .38 | 15 | 13 | .50 | 13 | 6 | .19 |
| 6 | 11 | 10 | .28 | 14 | 12 | .45 | 12 | 11 | .34 |
| 7 | 11 | 10 | .31 | 14 | 13 | .53 | 10 | 15 | .40 |
| 8 | 18 | 20 | 1.2 | 14 | 13 | .53 | 15 | 22 | 1.4 |
| 9 | 12 | 10 | .33 | 13 | 10 | .35 | 12 | 12 | .45 |
| 10 | 11 | 9 | .30 | 14 | 6 | .23 | 42 | 65 | 17 |
| 11 | 510 | 1030 | 3380 | 15 | 4 | .17 | 15 | 10 | .46 |
| 12 | 92 | 23 | 7.2 | 13 | 4 | .15 | 11 | 12 | .35 |
| 13 | 42 | 13 | 1.6 | 12 | 4 | .15 | 10 | 14 | .38 |
| 14 | 31 | 8 | .76 | 12 | 4 | .12 | 9.8 | 13 | .34 |
| 15 | 26 | 6 | .43 | 15 | 11 | .51 | 13 | 16 | .89 |
| 16 | 48 | 77 | 23 | 199 | 593 | 632 | 12 | 11 | .43 |
| 17 | 23 | 23 | 1.5 | 32 | 12 | 1.4 | 9.5 | 5 | .12 |
| 18 | 20 | 17 | .84 | 20 | 8 | .46 | 8.5 | 5 | .10 |
| 19 | 17 | 18 | .80 | 17 | 12 | .50 | 7.5 | 5 | .10 |
| 20 | 16 | 19 | .82 | 14 | 14 | .52 | 6.8 | 5 | .10 |
| 21 | 15 | 20 | .81 | 13 | 15 | .48 | 6.9 | 5 | .09 |
| 22 | 94 | 283 | 329 | 15 | 17 | .85 | 6.4 | 5 | .08 |
| 23 | 139 | 384 | 220 | 43 | 77 | 19 | 36 | 74 | 41 |
| 24 | 204 | 365 | 309 | 26 | 34 | 3.3 | 13 | 10 | .54 |
| 25 | 70 | 26 | 5.5 | 18 | 14 | .65 | 7.5 | 5 | .10 |
| 26 | 48 | 20 | 2.6 | 16 | 12 | .52 | 6.6 | 5 | .09 |
| 27 | 38 | 10 | 1.1 | 14 | 12 | .42 | 6.5 | 5 | .09 |
| 28 | 31 | 10 | .87 | 14 | 11 | .37 | 14 | 14 | 1.1 |
| 29 | 30 | 10 | .80 | 13 | 10 | .32 | 54 | 153 | 58 |
| 30 | 27 | 10 | .73 | 13 | 10 | .31 | 23 | 26 | 2.0 |
| 31 | 24 | 12 | .75 | 17 | 9 | .45 | --- | --- | --- |
| TOTAL | 1693 | --- | 4299.03 | 708 | --- | 668.34 | 435.0 | --- | 126.95 |
| YEAR | 7472.1 | | 9162.90 | | | | | | |

50053025 RIO TURABO ABOVE BORINQUEN, PR--Continued

WATER QUALITY DATA, WATER YEAR DECEMBER 1992 TO SEPTEMBER 1993

PARTICLE-SIZE DISTRIBUTION OF SUSPENDED SEDIMENT

| DATE | TIME | DIS- CHARGE, INST. CUBIC FEET PER SECOND | SEDI- MENT, DIS- CHARGE, SUS- PENDE (MG/L) | SEDI- MENT, DIS- CHARGE, SUS- PENDE (T/DAY) | SED. SUSP. FALL DIAM. PERCENT FINER THAN .002 MM | SED. SUSP. FALL DIAM. PERCENT FINER THAN .004 MM | SED. SUSP. FALL DIAM. PERCENT FINER THAN .008 MM |
|----------|------|--|--|---|---|---|---|
| MAY 1993 | | | | | | | |
| 01... | 1345 | 470 | 3690 | 4680 | 49 | 60 | 70 |
| 01... | 1810 | 418 | 3790 | 4280 | 43 | 51 | 58 |
| JUL | | | | | | | |
| 11... | 1312 | 1610 | 11500 | 50000 | 23 | 28 | 31 |

| DATE | SED. SUSP. FALL DIAM. PERCENT FINER THAN .016 MM | SED. SUSP. FALL DIAM. PERCENT FINER THAN .031 MM | SED. SUSP. SIEVE DIAM. PERCENT FINER THAN .062 MM | SED. SUSP. SIEVE DIAM. PERCENT FINER THAN .125 MM | SED. SUSP. SIEVE DIAM. PERCENT FINER THAN .250 MM | SED. SUSP. SIEVE DIAM. PERCENT FINER THAN .500 MM | SED. SUSP. SIEVE DIAM. PERCENT FINER THAN 1.00 MM |
|----------|---|---|--|--|--|--|--|
| MAY 1993 | | | | | | | |
| 01... | 81 | 89 | 97 | 99 | 99.7 | 99.9 | 100 |
| 01... | 71 | 86 | 96 | 99 | 99.4 | 99.7 | 100 |
| JUL | | | | | | | |
| 11... | 38 | 47 | 61 | 77 | 88 | 96 | 100 |

RIO GRANDE DE LOIZA BASIN

50053025 RIO TURABO ABOVE BORINQUEN, PR--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993

SILT AND CLAY PERCENT OF SUSPENDED SEDIMENT

| DATE | TIME | STREAM- FLOW, INSTAN- TANEOUS (CFS) | SEDI- MENT, SUS- PENDED (MG/L) | SEDI- MENT, DIS- CHARGE, SUS- PENDED (T/DAY) | SED. SUSP. SIEVE DIAM. PERCENT FINER THAN .062 MM |
|----------|------|---|--|--|--|
| OCT 1992 | | | | | |
| 06... | 1605 | 265 | 14300 | 10230 | 32 |
| 06... | 1955 | 60 | 935 | 154 | 98 |
| NOV | | | | | |
| 25... | 1345 | 8.6 | 394 | 9.1 | 96 |
| FEB 1993 | | | | | |
| 08... | 1434 | 9.6 | 85 | 2.2 | 77 |
| APR | | | | | |
| 15... | 1753 | 10 | 448 | 12 | 98 |
| MAY | | | | | |
| 01... | 1325 | 530 | 2520 | 3610 | 95 |
| JUN | | | | | |
| 13... | 1200 | 13 | 1150 | 40 | 98 |
| JUL | | | | | |
| 11... | 0912 | 564 | 2230 | 3400 | 94 |
| SEP | | | | | |
| 24... | 1540 | 10 | 391 | 11 | 99 |

RIO GRANDE DE LOIZA BASIN

223

50055000 RIO GRANDE DE LOIZA AT CAGUAS, PR

LOCATION.--Lat 18°14'33", long 66°00'34", Hydrologic Unit 21010005, on right bank 250 ft (76 m) upstream from bridge on Highway 189, 1.2 mi (1.9 km) downstream from Río Turabo, and 1.8 mi (2.9 km) east of Plaza de Caguas.

DRAINAGE AREA.--89.8 mi² (232.6 km²).

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--1959 (low-flow measurement only), February to November 1959 (monthly measurements only), December 1959 to current year.

GAGE.--Water-stage recorder. Datum of gage is 143.28 ft (43.672 m) above mean sea level.

REMARKS.--Records good except those for estimated daily discharges, which are poor. Gage-height and precipitation satellite telemetry at station.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993
DAILY MEAN VALUES

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|-------|------|-------|-------|-------|------|------|------|-------|-------|-------|-------|-------|
| 1 | 93 | 98 | 559 | 518 | 99 | 60 | e35 | 848 | 72 | 108 | 148 | 121 |
| 2 | 90 | 77 | 324 | 282 | 99 | 61 | 34 | 1150 | 72 | 104 | 139 | 111 |
| 3 | 84 | 113 | 284 | 232 | 115 | 57 | 38 | 343 | 64 | 189 | 130 | 136 |
| 4 | 82 | 238 | 232 | 196 | 92 | 52 | 35 | 149 | 59 | 156 | 120 | 103 |
| 5 | 80 | 156 | 188 | 166 | 87 | 53 | 32 | 111 | 57 | 100 | 120 | 130 |
| 6 | 362 | 208 | 163 | 180 | 84 | 52 | 33 | 186 | 54 | 86 | 117 | 184 |
| 7 | 235 | 238 | 147 | 232 | 84 | 50 | 33 | 121 | 51 | 95 | 110 | 107 |
| 8 | 108 | 117 | 133 | 222 | 80 | 49 | 33 | 90 | 54 | 183 | 115 | 101 |
| 9 | 94 | 98 | 126 | 176 | 79 | 48 | 70 | 343 | 64 | 105 | 107 | 166 |
| 10 | 91 | 216 | 121 | 157 | 75 | 52 | 70 | 252 | 77 | 85 | 115 | 265 |
| 11 | 90 | 104 | 115 | 137 | 78 | 49 | 49 | 124 | 86 | 6490 | 112 | 207 |
| 12 | 87 | 84 | 109 | 137 | 90 | 49 | 50 | 97 | 61 | 954 | 115 | 120 |
| 13 | 80 | 94 | 106 | 126 | 108 | 53 | 64 | 81 | 74 | 368 | 97 | 103 |
| 14 | 78 | 80 | 262 | 138 | 82 | 52 | 98 | 1880 | 451 | 264 | 93 | 105 |
| 15 | 77 | 148 | 205 | 120 | 74 | 52 | 277 | 323 | 363 | 215 | 96 | 94 |
| 16 | 78 | 124 | 117 | 114 | 71 | e50 | 117 | 157 | 312 | 415 | 1780 | 181 |
| 17 | 78 | 189 | 109 | 111 | 73 | e62 | 84 | 116 | 99 | 207 | 352 | 122 |
| 18 | 93 | 739 | 105 | 107 | 74 | e61 | 57 | 104 | 111 | 169 | 177 | 328 |
| 19 | 94 | 286 | 103 | 115 | 69 | e70 | 64 | 95 | 3730 | 151 | 145 | 157 |
| 20 | 88 | 174 | 98 | 99 | 70 | e66 | 52 | 91 | 1600 | 139 | 127 | 128 |
| 21 | 174 | 160 | 100 | 92 | 71 | e56 | 69 | 94 | 337 | 131 | 118 | 102 |
| 22 | 164 | 141 | 130 | 102 | 68 | e46 | 51 | 86 | 563 | 1350 | 171 | 91 |
| 23 | 88 | 158 | 113 | 157 | 66 | e44 | 49 | 84 | 263 | 1710 | 383 | 632 |
| 24 | 91 | 153 | 103 | 101 | 69 | e47 | 55 | 88 | 199 | 1190 | 219 | 356 |
| 25 | 204 | 134 | 112 | 175 | 64 | e48 | 45 | 86 | 146 | 464 | 149 | 152 |
| 26 | 139 | 115 | 1070 | 125 | 64 | e54 | 52 | 179 | 126 | 310 | 132 | 120 |
| 27 | 86 | 446 | 286 | 116 | 66 | e50 | 101 | 154 | 111 | 344 | 126 | 98 |
| 28 | 79 | 2200 | 153 | 144 | 60 | e43 | 66 | 158 | 103 | 217 | 112 | 103 |
| 29 | 79 | 410 | 323 | 350 | --- | e39 | 388 | 92 | 103 | 185 | 103 | 316 |
| 30 | 86 | 1970 | 258 | 146 | --- | e37 | 308 | 77 | 160 | 167 | 101 | 393 |
| 31 | 77 | --- | 476 | 113 | --- | e36 | --- | 72 | --- | 157 | 116 | --- |
| TOTAL | 3429 | 9468 | 6730 | 5186 | 2211 | 1598 | 2509 | 7831 | 9622 | 16808 | 6045 | 5332 |
| MEAN | 111 | 316 | 217 | 167 | 79.0 | 51.5 | 83.6 | 253 | 321 | 542 | 195 | 178 |
| MAX | 362 | 2200 | 1070 | 518 | 115 | 70 | 388 | 1880 | 3730 | 6490 | 1780 | 632 |
| MIN | 77 | 77 | 98 | 92 | 60 | 36 | 32 | 72 | 51 | 85 | 93 | 91 |
| AC-FT | 6800 | 18780 | 13350 | 10290 | 4390 | 3170 | 4980 | 15530 | 19090 | 33340 | 11990 | 10580 |
| CFSM | 1.23 | 3.51 | 2.42 | 1.86 | .88 | .57 | .93 | 2.81 | 3.57 | 6.04 | 2.17 | 1.98 |
| IN. | 1.42 | 3.92 | 2.79 | 2.15 | .92 | .66 | 1.04 | 3.24 | 3.99 | 6.96 | 2.50 | 2.21 |

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1960 - 1993, BY WATER YEAR (WY)

| | 379 | 316 | 232 | 149 | 110 | 89.8 | 84.7 | 254 | 262 | 233 | 257 | 256 |
|------|------|------|------|------|------|------|------|------|------|------|------|------|
| MEAN | 379 | 316 | 232 | 149 | 110 | 89.8 | 84.7 | 254 | 262 | 233 | 257 | 256 |
| MAX | 1910 | 1131 | 714 | 559 | 291 | 306 | 226 | 863 | 1283 | 660 | 949 | 764 |
| (WY) | 1971 | 1988 | 1988 | 1992 | 1984 | 1989 | 1985 | 1985 | 1979 | 1961 | 1979 | 1979 |
| MIN | 44.2 | 64.9 | 33.6 | 45.3 | 35.6 | 23.2 | 38.0 | 33.7 | 34.1 | 21.8 | 53.6 | 37.4 |
| (WY) | 1968 | 1968 | 1968 | 1968 | 1968 | 1968 | 1968 | 1974 | 1975 | 1974 | 1967 | 1967 |

SUMMARY STATISTICS

FOR 1992 CALENDAR YEAR

FOR 1993 WATER YEAR

WATER YEARS 1960 - 1993

| | | | |
|--------------------------|--------|--------|--------------|
| ANNUAL TOTAL | 80283 | 76769 | |
| ANNUAL MEAN | 219 | 210 | 219 |
| HIGHEST ANNUAL MEAN | | | 526 |
| LOWEST ANNUAL MEAN | | | 82.3 |
| HIGHEST DAILY MEAN | 7930 | Jan 5 | 6490 Jul 11 |
| LOWEST DAILY MEAN | 30 | Apr 28 | 32 Apr 5 |
| ANNUAL SEVEN-DAY MINIMUM | 34 | Apr 24 | 34 Apr 2 |
| INSTANTANEOUS PEAK FLOW | | | 28400 Jul 11 |
| INSTANTANEOUS PEAK STAGE | | | 20.49 Jul 11 |
| INSTANTANEOUS LOW FLOW | | | 29 Apr 8 |
| ANNUAL RUNOFF (AC-FT) | 159200 | 152300 | 158900 |
| ANNUAL RUNOFF (CFSM) | 2.44 | 2.34 | 2.44 |
| ANNUAL RUNOFF (INCHES) | 33.26 | 31.80 | 33.18 |
| 10 PERCENT EXCEEDS | 323 | 343 | 364 |
| 50 PERCENT EXCEEDS | 98 | 110 | 106 |
| 90 PERCENT EXCEEDS | 48 | 53 | 40 |

e Estimated

RIO GRANDE DE LOIZA BASIN

50055000 RIO GRANDE DE LOIZA AT CAGUAS, PR--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Water years 1959 to current year.

PERIOD OF DAILY RECORD.--

SUSPENDED-SEDIMENT DISCHARGE: October 1983 to September 1989.

INSTRUMENTATION.-- USD-49 and automatic sediment sampler.

EXTREMES FOR PERIOD OF DAILY RECORD.--

SEDIMENT CONCENTRATION: Maximum daily mean, 14,500 mg/L Nov. 27, 1987; Minimum daily mean, 8 mg/L Jan. 23, 1992.

SEDIMENT LOADS: Maximum daily mean, 227,000 tons (205,890 tonnes) Nov. 27, 1987; Minimum daily mean, 1.3 tons (1.2) July 14, 1985.

EXTREMES FOR WATER YEAR 1993.--

SEDIMENT CONCENTRATION: Maximum daily mean, 1,660 mg/L July 11, 1993; minimum daily mean, 8 mg/L several days.

SEDIMENT LOADS: Maximum daily mean, 64,100 tons (58,200 tonnes) July 11, 1993; minimum daily 1.9 ton (1.7 tonnes) Oct. 05, 1992.

WATER-QUALITY DATA, WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993

| | | DIS- CHARGE, INST. CUBIC FEET PER SECOND | SPE- CIFIC CON- DUCT- ANCE (US/CM) | PH WATER WHOLE FIELD (STAND- ARD UNITS) | TEMPER- ATURE WATER (DEG C) | TUR- BID- ITY (NTU) | OXYGEN, DIS- SOLVED (MG/L) | OXYGEN, DIS- SOLVED (PER- CENT SATUR- ATION) | OXYGEN DEMAND, CHEM- ICAL (HIGH LEVEL) (MG/L) | COLI- FORM, FECAL, 0.45 UM-MF (COLS./ 100 ML) | STREP- TOCOCCI FECAL, (COLS. PER 100 ML) |
|----------|--|--|---|---|--|--|--|---|---|---|---|
| OCT 1992 | | | | | | | | | | | |
| 09... | 1115 | 93 | 254 | 7.5 | 28.0 | 12 | 6.9 | 87 | <10 | 32000 | K1500 |
| DEC | | | | | | | | | | | |
| 14... | 1245 | 110 | 248 | 7.6 | 25.6 | 27 | 7.9 | 92 | 18 | K6900 | 600 |
| FEB 1993 | | | | | | | | | | | |
| 24... | 1310 | 69 | 198 | 7.7 | 25.4 | 53 | 7.7 | 91 | 41 | 5300 | 250 |
| APR | | | | | | | | | | | |
| 16... | 1215 | 100 | 263 | 6.6 | 24.5 | 300 | 4.4 | 52 | 20 | K69000 | 44000 |
| JUN | | | | | | | | | | | |
| 17... | 1530 | 97 | 254 | 6.9 | 29.9 | 24 | 6.8 | 84 | 20 | K7400 | 4000 |
| AUG | | | | | | | | | | | |
| 12... | 1310 | 97 | 220 | 7.1 | 30.1 | 20 | 5.5 | 76 | <10 | 52000 | 240 |
| DATE | HARD- NESS TOTAL (MG/L AS CACO3) | HARD- NESS NONCARB TOT FLD MG/L AS CACO3 | CALCIUM DIS- SOLVED (MG/L AS CA) | MAGNE- SIUM, DIS- SOLVED (MG/L AS MG) | SODIUM, DIS- SOLVED (MG/L AS NA) | SODIUM AD- SORP- TION RATIO | POTAS- SIUM, DIS- SOLVED (MG/L AS K) | ALKA- LITY WAT WH TOT FET FIELD MG/L AS CACO3 | SULFIDE TOTAL (MG/L AS S) | SULFATE DIS- SOLVED (MG/L AS SO4) | CHLO- RIDE, DIS- SOLVED (MG/L AS CL) |
| OCT 1992 | | | | | | | | | | | |
| 09... | 75 | 0 | 19 | 6.7 | 21 | 1 | 2.3 | 82 | <0.5 | 13 | 17 |
| DEC | | | | | | | | | | | |
| 14... | -- | -- | -- | -- | -- | -- | -- | 67 | -- | -- | -- |
| FEB 1993 | | | | | | | | | | | |
| 24... | -- | -- | -- | -- | -- | -- | -- | 84 | -- | -- | -- |
| APR | | | | | | | | | | | |
| 16... | 70 | 1 | 17 | 6.6 | 18 | 0.9 | 2.8 | 57 | <0.5 | 16 | 16 |
| JUN | | | | | | | | | | | |
| 17... | -- | -- | -- | -- | -- | -- | -- | 75 | -- | -- | -- |
| AUG | | | | | | | | | | | |
| 12... | 67 | 0 | 17 | 5.9 | 19 | 1 | 2.0 | 58 | -- | 11 | 17 |
| DATE | FLUO- RIDE, DIS- SOLVED (MG/L AS F) | SILICA, DIS- SOLVED (MG/L AS SiO2) | SOLIDS, SUM OF CONSTI- TUENTS, DIS- SOLVED (MG/L) | SOLIDS, DIS- SOLVED (TONS PER DAY) | RESIDUE TOTAL AT 105 DEG. C, SUS- PENDE (MG/L) | NITRO- GEN, NITRATE TOTAL (MG/L AS N) | NITRO- GEN, NITRITE TOTAL (MG/L AS N) | NITRO- GEN, NO2+NO3 TOTAL (MG/L AS N) | NITRO- GEN, AMMONIA TOTAL (MG/L AS N) | NITRO- GEN, ORGANIC TOTAL (MG/L AS N) | |
| OCT 1992 | | | | | | | | | | | |
| 09... | 0.10 | 33 | 161 | 40.3 | 8 | 0.350 | 0.040 | 0.390 | 0.160 | 0.44 | |
| DEC | | | | | | | | | | | |
| 14... | -- | -- | -- | -- | 16 | 0.370 | 0.030 | 0.400 | 0.070 | 0.33 | |
| FEB 1993 | | | | | | | | | | | |
| 24... | -- | -- | -- | -- | 73 | 0.450 | 0.050 | 0.500 | 0.140 | 0.46 | |
| APR | | | | | | | | | | | |
| 16... | <0.10 | 22 | 133 | 35.8 | 502 | 0.600 | 0.100 | 0.700 | 0.410 | 0.59 | |
| JUN | | | | | | | | | | | |
| 17... | -- | -- | -- | -- | 36 | 0.260 | 0.040 | 0.300 | 0.130 | 0.37 | |
| AUG | | | | | | | | | | | |
| 12... | 0.10 | 33 | 150 | 39.3 | 25 | 0.330 | 0.070 | 0.400 | 0.140 | 0.36 | |

K = non-ideal count

WATER-QUALITY DATA, WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993

[illegible]

RIO GRANDE DE LOIZA BASIN

50055000 RIO GRANDE DE LOIZA AT CAGUAS, PR--Continued

SEDIMENT DISCHARGE, SUSPENDED (TONS/DAY), WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993

| DAY | MEAN DISCHARGE (CFS) | MEAN CONCEN- TRATION (MG/L) | SEDIMENT DISCHARGE (TONS/DAY) | MEAN DISCHARGE (CFS) | MEAN CONCEN- TRATION (MG/L) | SEDIMENT DISCHARGE (TONS/DAY) | MEAN DISCHARGE (CFS) | MEAN CONCEN- TRATION (MG/L) | SEDIMENT DISCHARGE (TONS/DAY) |
|---------|----------------------------|--------------------------------------|-------------------------------------|----------------------------|--------------------------------------|-------------------------------------|----------------------------|--------------------------------------|-------------------------------------|
| OCTOBER | | | NOVEMBER | | | DECEMBER | | | |
| 1 | 93 | 27 | 6.8 | 98 | 66 | 18 | 559 | 254 | 564 |
| 2 | 90 | 20 | 4.8 | 77 | 52 | 11 | 324 | 155 | 146 |
| 3 | 84 | 14 | 3.2 | 113 | 60 | 23 | 284 | 131 | 109 |
| 4 | 82 | 11 | 2.4 | 238 | 124 | 90 | 232 | 103 | 65 |
| 5 | 80 | 9 | 1.9 | 156 | 90 | 43 | 188 | 30 | 16 |
| 6 | 362 | 202 | 621 | 208 | 140 | 108 | 163 | 18 | 8.0 |
| 7 | 235 | 139 | 114 | 238 | 127 | 92 | 147 | 17 | 7.3 |
| 8 | 108 | 82 | 25 | 117 | 75 | 26 | 133 | 17 | 6.3 |
| 9 | 94 | 48 | 12 | 98 | 62 | 17 | 126 | 15 | 5.1 |
| 10 | 91 | 43 | 11 | 216 | 141 | 92 | 121 | 13 | 4.2 |
| 11 | 90 | 37 | 9.0 | 104 | 141 | 40 | 115 | 11 | 3.4 |
| 12 | 87 | 32 | 7.6 | 84 | 73 | 17 | 109 | 10 | 2.9 |
| 13 | 80 | 26 | 5.7 | 94 | 35 | 8.8 | 106 | 10 | 2.7 |
| 14 | 78 | 21 | 4.5 | 80 | 24 | 5.3 | 262 | 76 | 244 |
| 15 | 77 | 21 | 4.4 | 148 | 73 | 56 | 205 | 79 | 63 |
| 16 | 78 | 25 | 5.1 | 124 | 150 | 52 | 117 | 18 | 5.7 |
| 17 | 78 | 29 | 5.9 | 189 | 113 | 78 | 109 | 18 | 5.1 |
| 18 | 93 | 46 | 13 | 739 | 460 | 1970 | 105 | 27 | 7.4 |
| 19 | 94 | 89 | 23 | 286 | 145 | 132 | 103 | 35 | 9.8 |
| 20 | 88 | 82 | 19 | 174 | 107 | 52 | 98 | 52 | 14 |
| 21 | 174 | 106 | 87 | 160 | 62 | 26 | 100 | 69 | 18 |
| 22 | 164 | 94 | 53 | 141 | 42 | 16 | 130 | 85 | 30 |
| 23 | 88 | 48 | 11 | 158 | 35 | 15 | 113 | 100 | 30 |
| 24 | 91 | 49 | 16 | 153 | 49 | 23 | 103 | 99 | 28 |
| 25 | 204 | 109 | 71 | 134 | 55 | 21 | 112 | 83 | 25 |
| 26 | 139 | 87 | 35 | 115 | 24 | 7.6 | 1070 | 502 | 3810 |
| 27 | 86 | 47 | 11 | 446 | 190 | 556 | 286 | 157 | 143 |
| 28 | 79 | 33 | 6.9 | 2200 | 910 | 11800 | 153 | 89 | 38 |
| 29 | 79 | 33 | 7.1 | 410 | 187 | 226 | 323 | 165 | 160 |
| 30 | 86 | 35 | 8.0 | 1970 | 793 | 8920 | 258 | 155 | 110 |
| 31 | 77 | 39 | 8.2 | --- | --- | --- | 476 | 228 | 404 |
| TOTAL | 3429 | --- | 1213.5 | 9468 | --- | 24541.7 | 6730 | --- | 6084.9 |

RIO GRANDE DE LOIZA BASIN

227

50055000 RIO GRANDE DE LOIZA AT CAGUAS, PR--Continued

SEDIMENT DISCHARGE, SUSPENDED (TONS/DAY), WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993

| DAY | MEAN DISCHARGE (CFS) | MEAN CONCEN- TRATION (MG/L) | SEDIMENT DISCHARGE (TONS/DAY) | MEAN DISCHARGE (CFS) | MEAN CONCEN- TRATION (MG/L) | SEDIMENT DISCHARGE (TONS/DAY) | MEAN DISCHARGE (CFS) | MEAN CONCEN- TRATION (MG/L) | SEDIMENT DISCHARGE (TONS/DAY) |
|---------|----------------------------|--------------------------------------|-------------------------------------|----------------------------|--------------------------------------|-------------------------------------|----------------------------|--------------------------------------|-------------------------------------|
| JANUARY | | | FEBRUARY | | | MARCH | | | |
| 1 | 518 | 232 | 335 | 99 | 80 | 22 | 60 | 46 | 7.5 |
| 2 | 282 | 93 | 79 | 99 | 77 | 22 | 61 | 54 | 8.7 |
| 3 | 232 | 60 | 41 | 115 | 74 | 24 | 57 | 61 | 9.1 |
| 4 | 196 | 74 | 39 | 92 | 72 | 19 | 52 | 64 | 9.0 |
| 5 | 166 | 38 | 17 | 87 | 71 | 16 | 53 | 64 | 9.0 |
| 6 | 180 | 17 | 8.6 | 84 | 70 | 16 | 52 | 63 | 8.8 |
| 7 | 232 | 61 | 45 | 84 | 69 | 15 | 50 | 60 | 8.0 |
| 8 | 222 | 95 | 62 | 80 | 67 | 15 | 49 | 51 | 6.7 |
| 9 | 176 | 67 | 33 | 79 | 65 | 14 | 48 | 49 | 6.4 |
| 10 | 157 | 86 | 36 | 75 | 58 | 12 | 52 | 44 | 6.1 |
| 11 | 137 | 72 | 27 | 78 | 44 | 9.4 | 49 | 43 | 5.6 |
| 12 | 137 | 62 | 23 | 90 | 30 | 7.2 | 49 | 43 | 5.4 |
| 13 | 126 | 56 | 20 | 108 | 23 | 6.3 | 53 | 43 | 5.9 |
| 14 | 138 | 67 | 26 | 82 | 29 | 6.4 | 52 | 46 | 6.5 |
| 15 | 120 | 37 | 12 | 74 | 44 | 8.9 | 52 | 48 | 6.7 |
| 16 | 114 | 13 | 4.1 | 71 | 54 | 11 | e50 | 53 | e7.1 |
| 17 | 111 | 16 | 4.7 | 73 | 57 | 11 | e62 | 75 | e12 |
| 18 | 107 | 20 | 5.8 | 74 | 57 | 11 | e61 | 95 | e15 |
| 19 | 115 | 24 | 7.4 | 69 | 59 | 11 | e70 | 92 | e17 |
| 20 | 99 | 26 | 7.0 | 70 | 71 | 14 | e66 | 77 | e15 |
| 21 | 92 | 25 | 6.3 | 71 | 92 | 18 | e56 | 57 | e8.6 |
| 22 | 102 | 24 | 6.6 | 68 | 112 | 21 | e46 | 41 | e5.3 |
| 23 | 157 | 40 | 20 | 66 | 132 | 24 | e44 | 32 | e3.8 |
| 24 | 101 | 19 | 5.2 | 69 | 131 | 24 | e47 | 28 | e3.5 |
| 25 | 175 | 80 | 59 | 64 | 86 | 15 | e48 | 29 | e3.8 |
| 26 | 125 | 156 | 54 | 64 | 55 | 9.3 | e54 | 30 | e4.2 |
| 27 | 116 | 148 | 45 | 66 | 36 | 6.3 | e50 | 31 | e4.1 |
| 28 | 144 | 140 | 54 | 60 | 38 | 6.1 | e43 | 31 | e3.6 |
| 29 | 350 | 383 | 428 | --- | --- | --- | e39 | 32 | e3.4 |
| 30 | 146 | 221 | 92 | --- | --- | --- | e37 | 33 | e3.5 |
| 31 | 113 | 103 | 32 | --- | --- | --- | e36 | 33 | e3.1 |
| TOTAL | 5186 | --- | 1634.7 | 2211 | --- | 394.9 | 1598 | --- | 222.4 |

e Estimated

RIO GRANDE DE LOIZA BASIN

50055000 RIO GRANDE DE LOIZA AT CAGUAS, PR--Continued

SEDIMENT DISCHARGE, SUSPENDED (TONS/DAY), WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993

| DAY | MEAN DISCHARGE (CFS) | MEAN CONCEN- TRATION (MG/L) | SEDIMENT DISCHARGE (TONS/DAY) | MEAN DISCHARGE (CFS) | MEAN CONCEN- TRATION (MG/L) | SEDIMENT DISCHARGE (TONS/DAY) | MEAN DISCHARGE (CFS) | MEAN CONCEN- TRATION (MG/L) | SEDIMENT DISCHARGE (TONS/DAY) |
|-------|----------------------------|--------------------------------------|-------------------------------------|----------------------------|--------------------------------------|-------------------------------------|----------------------------|--------------------------------------|-------------------------------------|
| APRIL | | | MAY | | | JUNE | | | |
| 1 | e35 | 34 | e3.0 | 848 | 417 | 2130 | 72 | 15 | 2.9 |
| 2 | 34 | 45 | 4.0 | 1150 | 503 | 3300 | 72 | 14 | 2.7 |
| 3 | 38 | 50 | 4.9 | 343 | 171 | 191 | 64 | 14 | 2.3 |
| 4 | 35 | 49 | 4.6 | 149 | 60 | 25 | 59 | 17 | 2.7 |
| 5 | 32 | 46 | 4.0 | 111 | 39 | 12 | 57 | 25 | 3.8 |
| 6 | 33 | 43 | 3.7 | 186 | 100 | 54 | 54 | 38 | 5.6 |
| 7 | 33 | 42 | 3.8 | 121 | 73 | 26 | 51 | 58 | 8.0 |
| 8 | 33 | 54 | 4.7 | 90 | 58 | 14 | 54 | 83 | 12 |
| 9 | 70 | 53 | 10 | 343 | 246 | 303 | 64 | 98 | 17 |
| 10 | 70 | 43 | 8.2 | 252 | 133 | 106 | 77 | 101 | 21 |
| 11 | 49 | 39 | 5.2 | 124 | 79 | 27 | 86 | 98 | 23 |
| 12 | 50 | 37 | 5.1 | 97 | 66 | 18 | 61 | 71 | 12 |
| 13 | 64 | 47 | 11 | 81 | 54 | 12 | 74 | 56 | 13 |
| 14 | 98 | 108 | 30 | 1880 | 1020 | 12500 | 451 | 205 | 411 |
| 15 | 277 | 136 | 265 | 323 | 106 | 118 | 363 | 170 | 256 |
| 16 | 117 | 114 | 38 | 157 | 62 | 27 | 312 | 192 | 269 |
| 17 | 84 | 102 | 24 | 116 | 60 | 19 | 99 | 45 | 12 |
| 18 | 57 | 94 | 15 | 104 | 55 | 15 | 111 | 78 | 50 |
| 19 | 64 | 85 | 15 | 95 | 51 | 13 | 3730 | 1470 | 16400 |
| 20 | 52 | 75 | 11 | 91 | 48 | 12 | 1600 | 652 | 4390 |
| 21 | 69 | 98 | 18 | 94 | 44 | 11 | 337 | 179 | 169 |
| 22 | 51 | 81 | 11 | 86 | 42 | 9.6 | 563 | 209 | 370 |
| 23 | 49 | 44 | 5.6 | 84 | 41 | 9.3 | 263 | 133 | 97 |
| 24 | 55 | 33 | 5.0 | 88 | 39 | 9.3 | 199 | 114 | 62 |
| 25 | 45 | 30 | 3.6 | 86 | 37 | 8.9 | 146 | 83 | 34 |
| 26 | 52 | 37 | 5.7 | 179 | 78 | 47 | 126 | 52 | 18 |
| 27 | 101 | 60 | 17 | 154 | 90 | 40 | 111 | 28 | 8.5 |
| 28 | 66 | 44 | 8.0 | 158 | 86 | 42 | 103 | 14 | 3.8 |
| 29 | 388 | 229 | 848 | 92 | 36 | 8.9 | 103 | 21 | 6.4 |
| 30 | 308 | 156 | 160 | 77 | 22 | 4.5 | 160 | 82 | 37 |
| 31 | --- | --- | --- | 72 | 17 | 3.2 | --- | --- | --- |
| TOTAL | 2509 | --- | 1552.1 | 7831 | --- | 19115.7 | 9622 | --- | 22719.7 |

e Estimated

RIO GRANDE DE LOIZA BASIN

229

50055000 RIO GRANDE DE LOIZA AT CAGUAS, PR--Continued

SEDIMENT DISCHARGE, SUSPENDED (TONS/DAY), WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993

| DAY | MEAN DISCHARGE (CFS) | MEAN CONCEN- TRATION (MG/L) | SEDIMENT DISCHARGE (TONS/DAY) | MEAN DISCHARGE (CFS) | MEAN CONCEN- TRATION (MG/L) | SEDIMENT DISCHARGE (TONS/DAY) | MEAN DISCHARGE (CFS) | MEAN CONCEN- TRATION (MG/L) | SEDIMENT DISCHARGE (TONS/DAY) |
|-------|----------------------------|--------------------------------------|-------------------------------------|----------------------------|--------------------------------------|-------------------------------------|----------------------------|--------------------------------------|-------------------------------------|
| JULY | | | AUGUST | | | SEPTEMBER | | | |
| 1 | 108 | 44 | 13 | 148 | 46 | 18 | 121 | 46 | 15 |
| 2 | 104 | 33 | 9.4 | 139 | 30 | 11 | 111 | 111 | 35 |
| 3 | 189 | 74 | 47 | 130 | 16 | 5.8 | 136 | 194 | 68 |
| 4 | 156 | 69 | 33 | 120 | 11 | 3.4 | 103 | 142 | 41 |
| 5 | 100 | 23 | 6.3 | 120 | 9 | 2.9 | 130 | 95 | 38 |
| 6 | 86 | 14 | 3.2 | 117 | 9 | 2.8 | 184 | 102 | 63 |
| 7 | 95 | 62 | 20 | 110 | 8 | 2.6 | 107 | 61 | 18 |
| 8 | 183 | 100 | 51 | 115 | 8 | 2.6 | 101 | 45 | 13 |
| 9 | 105 | 66 | 19 | 107 | 10 | 2.7 | 166 | 87 | 43 |
| 10 | 85 | 56 | 13 | 115 | 10 | 3.1 | 265 | 133 | 120 |
| 11 | 6490 | 1660 | 64100 | 112 | 10 | 3.2 | 207 | 144 | 85 |
| 12 | 954 | 433 | 1350 | 115 | 11 | 3.4 | 120 | 88 | 29 |
| 13 | 368 | 169 | 174 | 97 | 13 | 3.3 | 103 | 52 | 15 |
| 14 | 264 | 59 | 46 | 93 | 13 | 3.1 | 105 | 30 | 8.8 |
| 15 | 215 | 12 | 7.0 | 96 | 25 | 7.1 | 94 | 15 | 4.0 |
| 16 | 415 | 154 | 278 | 1780 | 759 | 5310 | 181 | 82 | 44 |
| 17 | 207 | 123 | 69 | 352 | 217 | 246 | 122 | 71 | 24 |
| 18 | 169 | 77 | 35 | 177 | 51 | 27 | 328 | 280 | 907 |
| 19 | 151 | 45 | 18 | 145 | 20 | 8.0 | 157 | 81 | 38 |
| 20 | 139 | 24 | 9.0 | 127 | 17 | 5.9 | 128 | 53 | 18 |
| 21 | 131 | 11 | 3.9 | 118 | 13 | 4.2 | 102 | 31 | 8.6 |
| 22 | 1350 | 423 | 4960 | 171 | 64 | 37 | 91 | 18 | 4.4 |
| 23 | 1710 | 728 | 4120 | 383 | 622 | 689 | 632 | 241 | 1940 |
| 24 | 1190 | 759 | 2430 | 219 | 581 | 352 | 356 | 178 | 278 |
| 25 | 464 | 214 | 285 | 149 | 442 | 178 | 152 | 94 | 43 |
| 26 | 310 | 156 | 133 | 132 | 333 | 118 | 120 | 73 | 25 |
| 27 | 344 | 173 | 169 | 126 | 242 | 84 | 98 | 60 | 16 |
| 28 | 217 | 100 | 60 | 112 | 169 | 51 | 103 | 51 | 14 |
| 29 | 185 | 73 | 36 | 103 | 111 | 32 | 316 | 141 | 232 |
| 30 | 167 | 70 | 31 | 101 | 66 | 18 | 393 | 191 | 253 |
| 31 | 157 | 66 | 28 | 116 | 36 | 11 | --- | --- | --- |
| TOTAL | 16808 | --- | 78556.8 | 6045 | --- | 7246.1 | 5332 | --- | 4440.8 |
| YEAR | 76769 | | 167723.3 | | | | | | |

RIO GRANDE DE LOIZA BASIN

50055000 RIO GRANDE DE LOIZA AT CAGUAS, PR--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993

PARTICLE-SIZE DISTRIBUTION OF SUSPENDED SEDIMENT

| DATE | TIME | DIS- CHARGE, INST. CUBIC FEET PER SECOND | SEDI- MENT, DIS- CHARGE, SUS- PENDE (MG/L) | SEDI- MENT, DIS- CHARGE, SUS- PENDE (T/DAY) | SED. SUSP. FALL DIAM. PERCENT FINER THAN .002 MM | SED. SUSP. FALL DIAM. PERCENT FINER THAN .004 MM | SED. SUSP. FALL DIAM. PERCENT FINER THAN .008 MM |
|----------|------|--|--|---|---|---|---|
| DEC 1992 | | | | | | | |
| 26... | 1911 | 1630 | 5830 | 25700 | 49 | 58 | 66 |
| MAY 1993 | | | | | | | |
| 14... | 0937 | 3740 | 3480 | 35100 | 44 | 54 | 63 |
| JUN | | | | | | | |
| 19... | 0336 | 3470 | 2510 | 23500 | 44 | 44 | 62 |
| JUL | | | | | | | |
| 07... | 1244 | 11500 | 2270 | 70500 | 43 | 52 | 59 |
| 23... | 0032 | 1560 | 3270 | 13800 | 39 | 43 | 52 |
| AUG | | | | | | | |
| 16... | 1125 | 4130 | 2520 | 28100 | 44 | 50 | 62 |

| DATE | SED. SUSP. FALL DIAM. PERCENT FINER THAN .016 MM | SED. SUSP. FALL DIAM. PERCENT FINER THAN .031 MM | SED. SUSP. SIEVE DIAM. PERCENT FINER THAN .062 MM | SED. SUSP. SIEVE DIAM. PERCENT FINER THAN .125 MM | SED. SUSP. SIEVE DIAM. PERCENT FINER THAN .250 MM | SED. SUSP. SIEVE DIAM. PERCENT FINER THAN .500 MM | SED. SUSP. SIEVE DIAM. PERCENT FINER THAN 1.00 MM |
|----------|---|---|--|--|--|--|--|
| DEC 1992 | | | | | | | |
| 26... | 77 | 88 | 95 | 98 | 99 | 100 | 100 |
| MAY 1993 | | | | | | | |
| 14... | 77 | 83 | 92 | 93 | 93 | 100 | 100 |
| JUN | | | | | | | |
| 19... | 74 | 86 | 96 | 99 | 99.7 | 100 | 100 |
| JUL | | | | | | | |
| 11... | 72 | 82 | 96 | 99 | 99.6 | 99.8 | 100 |
| 23... | 69 | 84 | 89 | -- | 99.1 | 99.4 | 99.6 |
| AUG | | | | | | | |
| 16... | 73 | 81 | 96 | 98 | 99 | 99.5 | 100 |

RIO GRANDE DE LOIZA BASIN

50055000 RIO GRANDE DE LOIZA AT CAGUAS--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993

SILT AND CLAY PERCENT OF SUSPENDED SEDIMENT

| DATE | TIME | STREAM- FLOW, INSTAN- TANEOUS (CFS) | SEDI- MENT, SUS- PENDE (MG/L) | SEDI- MENT, DIS- CHARGE, SUS- PENDE (T/DAY) | SED. SUSP. SIEVE DIAM. PERCENT FINER THAN .062 MM |
|----------|------|---|---|---|--|
| OCT 1992 | | | | | |
| 06... | 1649 | 1550 | 1520 | 6360 | 99 |
| NOV | | | | | |
| 18... | 1651 | 2430 | 1650 | 10820 | 99 |
| 18... | 1742 | 2200 | 1540 | 9150 | 96 |
| DEC | | | | | |
| 01... | 1615 | 1610 | 387 | 1680 | 99 |
| 26... | 1637 | 4570 | 2170 | 26770 | 96 |
| FEB 1993 | | | | | |
| 06... | 1115 | 82 | 385 | 85 | 99 |
| MAY | | | | | |
| 01... | 0710 | 236 | 838 | 534 | 100 |
| 01... | 2220 | 1550 | 2200 | 9210 | 36 |
| 14... | 1452 | 2840 | 1660 | 12730 | 97 |
| JUN | | | | | |
| 14... | 1234 | 990 | 3180 | 8500 | 95 |
| 15... | 2320 | 1530 | 625 | 2580 | 98 |
| 19... | 0036 | 2650 | 341 | 2440 | 98 |
| 19... | 0910 | 3860 | 1930 | 20110 | 77 |
| JUL | | | | | |
| 11... | 1031 | 8770 | 1310 | 31020 | 98 |
| 11... | 1256 | 12310 | 1440 | 47860 | 96 |
| 22... | 1850 | 5540 | 748 | 11190 | 86 |
| 22... | 2145 | 3970 | 1710 | 18330 | 96 |
| 24... | 0850 | 2040 | 442 | 2430 | 95 |
| AUG | | | | | |
| 16... | 0955 | 5060 | 3290 | 44950 | 24 |
| 16... | 1811 | 1660 | 1140 | 5110 | 90 |

RIO GRANDE DE LOIZA BASIN

50055100 RIO CAGUITAS NEAR AGUAS BUENAS, PR

LOCATION.--Lat 18°14'48", long 66°05'37", Hydrologic Unit 21010005, on right bank 450 ft (137 m) upstream from bridge on Highway 777, 1.0 mi (1.6 km) southeast from Aguas Buenas, 3.9 mi (6.3 km) northwest from Caguas, and 2.1 mi (3.4 km) southwest from Las Carolinas.

DRAINAGE AREA.--5.30 mi² (13.72 km²).

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--February 1990 to current year.

GAGE.--Water-stage recorder and crest-stage gage. Elevation of gage is 394 ft (120 m), from topographic map.

REMARKS.--Records fair except those for estimated daily discharges, which are poor. Gage-height and precipitation satellite telemetry at station.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993
DAILY MEAN VALUES

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| 1 | 5.9 | 5.9 | 15 | 10 | 6.5 | 5.2 | 4.4 | 29 | 8.2 | 6.9 | 9.8 | 7.1 |
| 2 | 5.8 | 5.7 | 9.9 | 9.5 | 6.5 | 5.3 | 4.5 | 35 | 8.0 | 7.3 | 10 | 7.0 |
| 3 | 5.7 | 7.7 | 8.5 | 9.7 | 7.0 | 5.0 | 4.5 | 17 | 7.8 | 12 | 10 | 6.9 |
| 4 | 5.5 | 15 | 8.0 | 10 | 6.5 | 5.1 | 4.4 | 11 | 7.5 | 8.1 | 10 | 7.6 |
| 5 | 5.8 | 8.8 | 7.4 | 9.3 | 6.5 | 5.3 | 4.4 | 9.6 | 7.3 | 7.0 | 10 | 8.5 |
| 6 | e23 | 6.6 | 7.1 | 8.9 | 6.4 | 5.4 | 4.4 | 22 | 7.1 | 6.7 | 10 | 13 |
| 7 | e8.4 | 6.0 | 6.9 | 29 | 6.4 | 5.4 | 4.4 | 12 | 7.0 | 7.1 | 10 | 7.7 |
| 8 | 7.0 | 5.6 | 6.8 | 14 | 6.3 | 5.3 | 7.8 | 9.8 | 7.7 | 7.1 | 11 | 7.0 |
| 9 | 6.5 | 5.7 | 6.8 | 10 | 6.2 | 5.3 | 8.3 | 40 | 7.5 | 6.2 | 11 | 6.9 |
| 10 | 7.1 | 7.8 | 6.8 | 9.1 | 6.5 | 5.2 | 6.6 | 17 | 7.4 | 6.3 | 10 | 7.3 |
| 11 | 6.5 | 5.7 | 6.6 | 8.4 | 6.1 | 5.2 | 9.1 | 12 | 6.8 | 146 | 10 | 7.1 |
| 12 | 6.1 | 5.3 | 6.3 | 8.1 | 6.5 | 5.2 | 11 | 11 | 6.4 | 21 | 10 | 6.9 |
| 13 | 5.9 | 5.2 | 6.3 | 7.8 | 6.4 | 5.1 | 24 | 9.7 | 6.3 | 27 | 10 | 6.8 |
| 14 | 5.7 | 5.1 | 7.0 | 7.5 | 6.1 | 5.0 | 12 | 133 | 6.4 | 15 | 10 | 6.8 |
| 15 | 5.6 | 5.2 | 7.7 | 7.4 | 6.0 | 5.0 | 132 | 17 | 6.4 | 17 | 12 | 7.1 |
| 16 | 5.5 | 4.8 | 6.4 | 7.1 | e7.4 | 5.8 | 16 | 10 | 6.4 | 12 | 61 | 9.2 |
| 17 | 5.6 | 8.1 | 6.2 | 7.2 | 6.9 | 5.6 | 8.3 | 9.0 | 6.1 | 9.9 | 13 | 7.2 |
| 18 | 7.7 | 19 | 6.1 | 7.1 | 6.5 | 5.4 | 6.9 | 8.2 | 6.1 | 9.5 | 9.7 | 92 |
| 19 | 6.5 | 8.1 | 6.1 | 6.9 | 6.4 | 6.0 | 6.2 | 7.7 | 21 | 9.3 | 8.9 | 12 |
| 20 | 7.1 | 6.3 | 6.0 | 6.8 | 6.5 | 5.2 | 19 | 7.5 | 18 | 9.2 | 8.2 | 15 |
| 21 | 6.0 | 5.7 | 6.0 | 6.6 | 6.1 | 4.9 | 12 | 7.2 | 7.8 | 9.0 | 8.2 | 8.5 |
| 22 | 6.4 | 13 | 7.4 | 14 | 5.7 | 4.9 | 9.2 | 7.1 | 7.7 | 35 | 11 | 7.6 |
| 23 | 8.0 | 7.9 | 6.4 | 11 | 5.5 | 5.5 | 7.5 | 19 | 6.9 | 48 | 11 | 11 |
| 24 | 6.6 | 6.8 | 7.1 | 7.7 | 5.4 | 5.2 | 6.9 | 9.1 | 6.6 | 50 | 8.5 | 8.0 |
| 25 | 6.2 | 6.1 | 18 | 7.6 | 5.3 | 5.0 | 6.6 | 9.9 | 6.7 | 17 | 8.2 | 7.4 |
| 26 | 5.8 | 5.7 | 149 | 7.2 | 5.4 | 4.9 | 6.6 | 28 | 6.8 | 13 | 8.0 | 7.6 |
| 27 | 5.7 | 51 | 17 | 7.1 | 5.3 | 4.8 | 8.0 | 13 | 6.9 | 12 | 7.7 | 7.3 |
| 28 | 5.6 | 46 | 11 | 7.1 | 5.1 | 4.7 | 10 | 10 | 8.5 | 11 | 7.6 | 10 |
| 29 | 5.9 | 13 | 21 | 7.6 | --- | 4.6 | 17 | 8.8 | 7.2 | 10 | 7.5 | 13 |
| 30 | 5.6 | 65 | 13 | 6.7 | --- | 4.5 | 12 | 8.7 | 11 | 10 | 7.5 | 8.4 |
| 31 | 6.1 | --- | 12 | 6.6 | --- | 4.5 | --- | 8.3 | --- | 9.5 | 7.3 | --- |
| TOTAL | 210.8 | 367.8 | 415.8 | 283.0 | 173.4 | 159.5 | 394.0 | 556.6 | 241.5 | 575.1 | 347.1 | 337.9 |
| MEAN | 6.80 | 12.3 | 13.4 | 9.13 | 6.19 | 5.15 | 13.1 | 18.0 | 8.05 | 18.6 | 11.2 | 11.3 |
| MAX | 23 | 65 | 149 | 29 | 7.4 | 6.0 | 132 | 133 | 21 | 146 | 61 | 92 |
| MIN | 5.5 | 4.8 | 6.0 | 6.6 | 5.1 | 4.5 | 4.4 | 7.1 | 6.1 | 6.2 | 7.3 | 6.8 |
| AC-FT | 418 | 730 | 825 | 561 | 344 | 316 | 781 | 1100 | 479 | 1140 | 688 | 670 |
| CFSM | 1.28 | 2.31 | 2.53 | 1.72 | 1.17 | .97 | 2.48 | 3.39 | 1.52 | 3.50 | 2.11 | 2.13 |
| IN. | 1.48 | 2.58 | 2.92 | 1.99 | 1.22 | 1.12 | 2.77 | 3.91 | 1.70 | 4.04 | 2.44 | 2.37 |

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1990 - 1993, BY WATER YEAR (WY)

| | MEAN | 11.0 | 8.49 | 9.43 | 11.0 | 5.48 | 6.00 | 6.41 | 7.91 | 4.86 | 8.41 | 7.05 | 7.23 |
|------|------|------|------|------|------|------|------|------|------|------|------|------|------|
| MAX | 20.9 | 12.3 | 13.4 | 16.7 | 8.00 | 8.87 | 13.1 | 18.0 | 8.05 | 18.6 | 11.2 | 11.3 | |
| (WY) | 1991 | 1993 | 1993 | 1992 | 1991 | 1990 | 1993 | 1993 | 1993 | 1993 | 1993 | 1993 | |
| MIN | 5.30 | 5.76 | 5.59 | 7.19 | 3.51 | 3.60 | 3.19 | 2.48 | 3.40 | 3.74 | 5.14 | 5.01 | |
| (WY) | 1992 | 1991 | 1992 | 1991 | 1990 | 1992 | 1992 | 1990 | 1991 | 1990 | 1991 | 1991 | |

SUMMARY STATISTICS

FOR 1992 CALENDAR YEAR

FOR 1993 WATER YEAR

WATER YEARS 1990 - 1993

| | | | |
|--------------------------|--------|--------|-------|
| ANNUAL TOTAL | 2711.4 | 4062.5 | 8.26 |
| ANNUAL MEAN | 7.41 | 11.1 | 11.1 |
| HIGHEST ANNUAL MEAN | | | 1993 |
| LOWEST ANNUAL MEAN | | | 6.22 |
| HIGHEST DAILY MEAN | 235 | 149 | 235 |
| LOWEST DAILY MEAN | 2.4 | 4.4 | 1.8 |
| ANNUAL SEVEN-DAY MINIMUM | 2.6 | 4.4 | 1.9 |
| INSTANTANEOUS PEAK FLOW | | 2990 | 2990 |
| INSTANTANEOUS PEAK STAGE | | 18.28 | 18.28 |
| INSTANTANEOUS LOW FLOW | | 4.3 | 1.8 |
| ANNUAL RUNOFF (AC-FT) | 5380 | 8060 | 5980 |
| ANNUAL RUNOFF (CFSM) | 1.40 | 2.10 | 1.56 |
| ANNUAL RUNOFF (INCHES) | 19.03 | 28.51 | 21.17 |
| 10 PERCENT EXCEEDS | 8.7 | 16 | 11 |
| 50 PERCENT EXCEEDS | 4.3 | 7.3 | 5.1 |
| 90 PERCENT EXCEEDS | 2.9 | 5.3 | 3.0 |

e Estimated

50055100 RIO CAGUITAS NEAR AGUAS BUENAS, PR--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORDS.-- Water years 1990 to current year.

PERIOD OF DAILY RECORD.--

SUSPENDED-SEDIMENT DISCHARGE: February 1990 to September 1993.

INSTRUMENTATION.-- DH-48 and automatic sediment sampler.

EXTREMES FOR PERIOD OF DAILY RECORD.--

SEDIMENT CONCENTRATION: Maximum daily mean, 1,690 mg/L July 11, 1993; Minimum daily mean, 2 mg/L Several days.

SEDIMENT LOADS: Maximum daily mean, 3,730 tons (3,360 tonnes) Jan. 05, 1992; Minimum daily mean, 0.02 ton (0.03 tonne) Several days.

EXTREMES FOR WATER YEAR 1993.--

| Water Year | Suspended-sediment concentration (mg/L) | | Suspended-sediment discharge (tons per day) | |
|------------|---|-------------|---|---------------|
| | maximum | minimum | maximum | minimum |
| 1993 | 1,690 (July 11) | 2 (Aug. 29) | 1,890 (Apr. 15) | .05 (Aug. 29) |

SEDIMENT DISCHARGE, SUSPENDED (TONS/DAY), WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993

| DAY | MEAN DISCHARGE (CFS) | MEAN CONCENTRATION (MG/L) | SEDIMENT DISCHARGE (TONS/DAY) | OCTOBER | | | NOVEMBER | | | DECEMBER | | |
|-------|----------------------|---------------------------|-------------------------------|----------------------|---------------------------|-------------------------------|----------------------|---------------------------|-------------------------------|----------------------|---------------------------|-------------------------------|
| | | | | MEAN DISCHARGE (CFS) | MEAN CONCENTRATION (MG/L) | SEDIMENT DISCHARGE (TONS/DAY) | MEAN DISCHARGE (CFS) | MEAN CONCENTRATION (MG/L) | SEDIMENT DISCHARGE (TONS/DAY) | MEAN DISCHARGE (CFS) | MEAN CONCENTRATION (MG/L) | SEDIMENT DISCHARGE (TONS/DAY) |
| 1 | 5.9 | 12 | .18 | 5.9 | 53 | .86 | 15 | 212 | 11 | | | |
| 2 | 5.8 | 13 | .20 | 5.7 | 53 | .81 | 9.9 | 49 | 1.4 | | | |
| 3 | 5.7 | 14 | .20 | 7.7 | 65 | 1.5 | 8.5 | 38 | .86 | | | |
| 4 | 5.5 | 15 | .22 | 15 | 151 | 8.7 | 8.0 | 36 | .80 | | | |
| 5 | 5.8 | 15 | .24 | 8.8 | 63 | 1.5 | 7.4 | 37 | .74 | | | |
| 6 | e23 | 327 | e78 | 6.6 | 30 | .55 | 7.1 | 35 | .65 | | | |
| 7 | e8.4 | 176 | e4.1 | 6.0 | 29 | .46 | 6.9 | 27 | .50 | | | |
| 8 | 7.0 | 93 | 1.9 | 5.6 | 27 | .40 | 6.8 | 20 | .36 | | | |
| 9 | 6.5 | 33 | .59 | 5.7 | 21 | .31 | 6.8 | 16 | .30 | | | |
| 10 | 7.1 | 27 | .51 | 7.8 | 57 | 1.4 | 6.8 | 15 | .27 | | | |
| 11 | 6.5 | 55 | 1.0 | 5.7 | 20 | .30 | 6.6 | 14 | .24 | | | |
| 12 | 6.1 | 37 | .59 | 5.3 | 18 | .26 | 6.3 | 13 | .22 | | | |
| 13 | 5.9 | 26 | .42 | 5.2 | 17 | .25 | 6.3 | 14 | .24 | | | |
| 14 | 5.7 | 22 | .34 | 5.1 | 16 | .22 | 7.0 | 27 | .65 | | | |
| 15 | 5.6 | 20 | .29 | 5.2 | 23 | .32 | 7.7 | 28 | .77 | | | |
| 16 | 5.5 | 18 | .26 | 4.8 | 22 | .30 | 6.4 | 12 | .21 | | | |
| 17 | 5.6 | 17 | .27 | 8.1 | 44 | 1.1 | 6.2 | 12 | .20 | | | |
| 18 | 7.7 | 34 | .97 | 19 | 335 | 43 | 6.1 | 12 | .19 | | | |
| 19 | 6.5 | 32 | .59 | 8.1 | 174 | 4.5 | 6.1 | 10 | .16 | | | |
| 20 | 7.1 | 45 | .96 | 6.3 | 50 | .85 | 6.0 | 9 | .15 | | | |
| 21 | 6.0 | 27 | .43 | 5.7 | 46 | .70 | 6.0 | 6 | .11 | | | |
| 22 | 6.4 | 20 | .34 | 13 | 155 | 12 | 7.4 | 38 | .84 | | | |
| 23 | 8.0 | 46 | 1.8 | 7.9 | 51 | 1.1 | 6.4 | 49 | .83 | | | |
| 24 | 6.6 | 30 | .55 | 6.8 | 42 | .75 | 7.1 | 44 | .88 | | | |
| 25 | 6.2 | 28 | .45 | 6.1 | 28 | .45 | 18 | 274 | 36 | | | |
| 26 | 5.8 | 25 | .38 | 5.7 | 19 | .29 | 149 | 1270 | 1770 | | | |
| 27 | 5.7 | 21 | .32 | 51 | 755 | 304 | 17 | 158 | 9.0 | | | |
| 28 | 5.6 | 15 | .22 | 46 | 743 | 228 | 11 | 54 | 1.6 | | | |
| 29 | 5.9 | 11 | .18 | 13 | 95 | 4.0 | 21 | 341 | 41 | | | |
| 30 | 5.6 | 10 | .15 | 65 | 814 | 441 | 13 | 97 | 4.0 | | | |
| 31 | 6.1 | 26 | .46 | --- | --- | --- | 12 | 46 | 1.5 | | | |
| TOTAL | 210.8 | --- | 97.11 | 367.8 | --- | 1059.88 | 415.8 | --- | 1885.67 | | | |

e Estimated

RIO GRANDE DE LOIZA BASIN

50055100 RIO CAGUITAS NEAR AGUAS BUENAS, PR--Continued

SEDIMENT DISCHARGE, SUSPENDED (TONS/DAY), WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993

| DAY | MEAN DISCHARGE (CFS) | MEAN CONCEN- TRATION (MG/L) | SEDIMENT DISCHARGE (TONS/DAY) | MEAN DISCHARGE (CFS) | MEAN CONCEN- TRATION (MG/L) | SEDIMENT DISCHARGE (TONS/DAY) | MEAN DISCHARGE (CFS) | MEAN CONCEN- TRATION (MG/L) | SEDIMENT DISCHARGE (TONS/DAY) |
|---------|----------------------------|--------------------------------------|-------------------------------------|----------------------------|--------------------------------------|-------------------------------------|----------------------------|--------------------------------------|-------------------------------------|
| JANUARY | | | FEBRUARY | | | MARCH | | | |
| 1 | 10 | 25 | .71 | 6.5 | 20 | .33 | 5.2 | 6 | .08 |
| 2 | 9.5 | 14 | .35 | 6.5 | 20 | .33 | 5.3 | 6 | .09 |
| 3 | 9.7 | 23 | .75 | 7.0 | 17 | .31 | 5.0 | 8 | .12 |
| 4 | 10 | 72 | 2.1 | 6.5 | 13 | .23 | 5.1 | 14 | .20 |
| 5 | 9.3 | 37 | .99 | 6.5 | 10 | .17 | 5.3 | 14 | .20 |
| 6 | 8.9 | 46 | 1.1 | 6.4 | 7 | .13 | 5.4 | 8 | .11 |
| 7 | 29 | 714 | 153 | 6.4 | 7 | .12 | 5.4 | 6 | .08 |
| 8 | 14 | 113 | 4.8 | 6.3 | 6 | .11 | 5.3 | 6 | .09 |
| 9 | 10 | 40 | 1.2 | 6.2 | 5 | .09 | 5.3 | 7 | .11 |
| 10 | 9.1 | 17 | .41 | 6.5 | 19 | .38 | 5.2 | 8 | .12 |
| 11 | 8.4 | 17 | .39 | 6.1 | 18 | .29 | 5.2 | 8 | .11 |
| 12 | 8.1 | 17 | .36 | 6.5 | 16 | .28 | 5.2 | 6 | .09 |
| 13 | 7.8 | 16 | .33 | 6.4 | 20 | .34 | 5.1 | 5 | .07 |
| 14 | 7.5 | 13 | .26 | 6.1 | 23 | .37 | 5.0 | 5 | .07 |
| 15 | 7.4 | 8 | .17 | 6.0 | 24 | .38 | 5.0 | 6 | .08 |
| 16 | 7.1 | 8 | .16 | e7.4 | 19 | e.37 | 5.8 | 7 | .11 |
| 17 | 7.2 | 10 | .20 | 6.9 | 16 | .29 | 5.6 | 6 | .10 |
| 18 | 7.1 | 12 | .23 | 6.5 | 13 | .23 | 5.4 | 6 | .09 |
| 19 | 6.9 | 15 | .28 | 6.4 | 10 | .17 | 6.0 | 54 | .97 |
| 20 | 6.8 | 18 | .33 | 6.5 | 8 | .14 | 5.2 | 33 | .45 |
| 21 | 6.6 | 20 | .35 | 6.1 | 8 | .14 | 4.9 | 34 | .44 |
| 22 | 14 | 152 | 13 | 5.7 | 10 | .15 | 4.9 | 33 | .41 |
| 23 | 11 | 116 | 4.2 | 5.5 | 12 | .17 | 5.5 | 28 | .37 |
| 24 | 7.7 | 27 | .57 | 5.4 | 12 | .17 | 5.2 | 19 | .28 |
| 25 | 7.6 | 18 | .37 | 5.3 | 11 | .16 | 5.0 | 16 | .21 |
| 26 | 7.2 | 19 | .36 | 5.4 | 11 | .15 | 4.9 | 13 | .16 |
| 27 | 7.1 | 19 | .35 | 5.3 | 9 | .13 | 4.8 | 10 | .12 |
| 28 | 7.1 | 18 | .33 | 5.1 | 7 | .10 | 4.7 | 8 | .10 |
| 29 | 7.6 | 16 | .33 | --- | --- | --- | 4.6 | 12 | .15 |
| 30 | 6.7 | 17 | .31 | --- | --- | --- | 4.5 | 27 | .33 |
| 31 | 6.6 | 19 | .32 | --- | --- | --- | 4.5 | 27 | .33 |
| TOTAL | 283.0 | --- | 188.61 | 173.4 | --- | 6.23 | 159.5 | --- | 6.24 |

e Estimated

RIO GRANDE DE LOIZA BASIN

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50055100 RIO CAGUITAS NEAR AGUAS BUENAS, PR--Continued

SEDIMENT DISCHARGE, SUSPENDED (TONS/DAY), WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993

| DAY | MEAN DISCHARGE (CFS) | MEAN CONCEN- TRATION (MG/L) | SEDIMENT DISCHARGE (TONS/DAY) | MEAN DISCHARGE (CFS) | MEAN CONCEN- TRATION (MG/L) | SEDIMENT DISCHARGE (TONS/DAY) | MEAN DISCHARGE (CFS) | MEAN CONCEN- TRATION (MG/L) | SEDIMENT DISCHARGE (TONS/DAY) |
|-------|----------------------------|--------------------------------------|-------------------------------------|----------------------------|--------------------------------------|-------------------------------------|----------------------------|--------------------------------------|-------------------------------------|
| APRIL | | | MAY | | | JUNE | | | |
| 1 | 4.4 | 30 | .36 | 29 | 673 | 89 | 8.2 | 8 | .18 |
| 2 | 4.5 | 30 | .36 | 35 | 615 | 104 | 8.0 | 10 | .21 |
| 3 | 4.5 | 30 | .36 | 17 | 139 | 7.5 | 7.8 | 10 | .21 |
| 4 | 4.4 | 30 | .36 | 11 | 48 | 1.5 | 7.5 | 11 | .22 |
| 5 | 4.4 | 30 | .36 | 9.6 | 20 | .51 | 7.3 | 17 | .33 |
| 6 | 4.4 | 30 | .36 | 22 | 429 | 65 | 7.1 | 25 | .48 |
| 7 | 4.4 | 30 | .36 | 12 | 83 | 3.0 | 7.0 | 30 | .55 |
| 8 | 7.8 | 52 | 1.9 | 9.8 | 55 | 1.5 | 7.7 | 27 | .54 |
| 9 | 8.3 | 55 | 1.7 | 40 | 626 | 120 | 7.5 | 21 | .41 |
| 10 | 6.6 | 33 | .61 | 17 | 162 | 8.5 | 7.4 | 16 | .31 |
| 11 | 9.1 | 56 | 2.2 | 12 | 86 | 2.9 | 6.8 | 13 | .23 |
| 12 | 11 | 181 | 7.3 | 11 | 59 | 1.7 | 6.4 | 11 | .19 |
| 13 | 24 | 516 | 87 | 9.7 | 51 | 1.3 | 6.3 | 13 | .21 |
| 14 | 12 | 470 | 15 | 133 | 1440 | 1450 | 6.4 | 21 | .36 |
| 15 | 132 | 1400 | 1890 | 17 | 129 | 7.0 | 6.4 | 29 | .51 |
| 16 | 16 | 181 | 11 | 10 | 25 | .76 | 6.4 | 26 | .46 |
| 17 | 8.3 | 67 | 1.5 | 9.0 | 5 | .14 | 6.1 | 22 | .35 |
| 18 | 6.9 | 79 | 1.5 | 8.2 | 4 | .09 | 6.1 | 22 | .36 |
| 19 | 6.2 | 70 | 1.2 | 7.7 | 5 | .11 | 21 | 281 | 26 |
| 20 | 19 | 279 | 43 | 7.5 | 15 | .30 | 18 | 170 | 18 |
| 21 | 12 | 96 | 3.9 | 7.2 | 31 | .60 | 7.8 | 13 | .28 |
| 22 | 9.2 | 63 | 1.7 | 7.1 | 34 | .65 | 7.7 | 11 | .22 |
| 23 | 7.5 | 47 | .96 | 19 | 262 | 43 | 6.9 | 10 | .19 |
| 24 | 6.9 | 35 | .65 | 9.1 | 53 | 1.3 | 6.6 | 10 | .18 |
| 25 | 6.6 | 27 | .48 | 9.9 | 52 | 1.4 | 6.7 | 11 | .20 |
| 26 | 6.6 | 26 | .47 | 28 | 404 | 104 | 6.8 | 12 | .22 |
| 27 | 8.0 | 33 | .82 | 13 | 81 | 3.2 | 6.9 | 12 | .22 |
| 28 | 10 | 61 | 3.4 | 10 | 16 | .48 | 8.5 | 33 | 1.1 |
| 29 | 17 | 470 | 46 | 8.8 | 3 | .07 | 7.2 | 33 | .67 |
| 30 | 12 | 87 | 3.0 | 8.7 | 3 | .07 | 11 | 108 | 4.8 |
| 31 | --- | --- | --- | 8.3 | 5 | .13 | --- | --- | --- |
| TOTAL | 394.0 | --- | 2127.81 | 556.6 | --- | 2019.71 | 241.5 | --- | 58.19 |

RIO GRANDE DE LOIZA BASIN

50055100 RIO CAGUITAS NEAR AGUAS BUENAS, PR--Continued

SEDIMENT DISCHARGE, SUSPENDED (TONS/DAY), WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993

| DAY | MEAN DISCHARGE (CFS) | MEAN CONCEN- TRATION (MG/L) | SEDIMENT DISCHARGE (TONS/DAY) | MEAN DISCHARGE (CFS) | MEAN CONCEN- TRATION (MG/L) | SEDIMENT DISCHARGE (TONS/DAY) | MEAN DISCHARGE (CFS) | MEAN CONCEN- TRATION (MG/L) | SEDIMENT DISCHARGE (TONS/DAY) |
|-------|----------------------------|--------------------------------------|-------------------------------------|----------------------------|--------------------------------------|-------------------------------------|----------------------------|--------------------------------------|-------------------------------------|
| JULY | | | AUGUST | | | SEPTEMBER | | | |
| 1 | 6.9 | 27 | .51 | 9.8 | 11 | .28 | 7.1 | 11 | .20 |
| 2 | 7.3 | 68 | 1.9 | 10 | 10 | .25 | 7.0 | 12 | .21 |
| 3 | 12 | 113 | 6.2 | 10 | 9 | .24 | 6.9 | 12 | .22 |
| 4 | 8.1 | 32 | .74 | 10 | 8 | .23 | 7.6 | 40 | .95 |
| 5 | 7.0 | 15 | .27 | 10 | 8 | .22 | 8.5 | 49 | 2.0 |
| 6 | 6.7 | 9 | .16 | 10 | 8 | .22 | 13 | 152 | 14 |
| 7 | 7.1 | 29 | .67 | 10 | 8 | .22 | 7.7 | 143 | 3.2 |
| 8 | 7.1 | 37 | .71 | 11 | 7 | .21 | 7.0 | 102 | 1.9 |
| 9 | 6.2 | 30 | .50 | 11 | 6 | .17 | 6.9 | 75 | 1.4 |
| 10 | 6.3 | 28 | .50 | 10 | 4 | .11 | 7.3 | 54 | 1.0 |
| 11 | 146 | 1690 | 1290 | 10 | 3 | .08 | 7.1 | 36 | .73 |
| 12 | 21 | 329 | 27 | 10 | 3 | .08 | 6.9 | 23 | .43 |
| 13 | 27 | 788 | 76 | 10 | 3 | .08 | 6.8 | 13 | .24 |
| 14 | 15 | 151 | 7.5 | 10 | 3 | .08 | 6.8 | 7 | .14 |
| 15 | 17 | 108 | 13 | 12 | 3 | .10 | 7.1 | 10 | .25 |
| 16 | 12 | 30 | .98 | 61 | 797 | 197 | 9.2 | 66 | 2.1 |
| 17 | 9.9 | 26 | .69 | 13 | 82 | 3.3 | 7.2 | 30 | .57 |
| 18 | 9.5 | 22 | .55 | 9.7 | 23 | .58 | 92 | 661 | 1080 |
| 19 | 9.3 | 21 | .53 | 8.9 | 25 | .57 | 12 | 104 | 4.0 |
| 20 | 9.2 | 21 | .51 | 8.2 | 25 | .56 | 15 | 449 | 67 |
| 21 | 9.0 | 16 | .38 | 8.2 | 23 | .50 | 8.5 | 40 | .98 |
| 22 | 35 | 602 | 176 | 11 | 56 | 2.2 | 7.6 | 20 | .42 |
| 23 | 48 | 626 | 119 | 11 | 72 | 2.3 | 11 | 55 | 4.7 |
| 24 | 50 | 662 | 197 | 8.5 | 27 | .64 | 8.0 | 40 | .92 |
| 25 | 17 | 26 | 1.3 | 8.2 | 8 | .17 | 7.4 | 32 | .64 |
| 26 | 13 | 18 | .66 | 8.0 | 6 | .14 | 7.6 | 32 | .65 |
| 27 | 12 | 15 | .47 | 7.7 | 6 | .14 | 7.3 | 30 | .60 |
| 28 | 11 | 14 | .42 | 7.6 | 4 | .08 | 10 | 75 | 3.5 |
| 29 | 10 | 14 | .39 | 7.5 | 2 | .05 | 13 | 160 | 9.1 |
| 30 | 10 | 15 | .38 | 7.5 | 4 | .08 | 8.4 | 42 | 1.0 |
| 31 | 9.5 | 14 | .34 | 7.3 | 8 | .16 | --- | --- | --- |
| TOTAL | 575.1 | --- | 1925.26 | 347.1 | --- | 211.04 | 337.9 | --- | 1203.05 |
| YEAR | 4062.5 | | 10788.80 | | | | | | |

RIO GRANDE DE LOIZA BASIN

50055100 RIO CAGUITAS NEAR AGUAS BUENAS, PR--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993

PARTICLE-SIZE DISTRIBUTION OF SUSPENDED SEDIMENT

| DATE | TIME | DIS- CHARGE, INST. CUBIC FEET PER SECOND | SEDI- MENT, DIS- CHARGE, SUS- PENDED (MG/L) | SEDI- MENT, DIS- CHARGE, SUS- PENDED (T/DAY) | SED. SUSP. FALL DIAM. PERCENT FINER THAN .002 MM | SED. SUSP. FALL DIAM. PERCENT FINER THAN .004 MM | SED. SUSP. FALL DIAM. PERCENT FINER THAN .008 MM |
|----------|------|--|---|--|---|---|---|
| APR 1993 | | | | | | | |
| 15... | 1920 | 109 | 3760 | 1110 | 53 | 59 | 66 |
| 29... | 1800 | 28 | 13000 | 970 | 26 | 31 | 35 |
| MAY | | | | | | | |
| 01... | 1720 | 81 | 3170 | 693 | 53 | 63 | 67 |
| 06... | 1900 | 65 | 2930 | 514 | 57 | 68 | 69 |
| 26... | 1453 | 213 | 4480 | 2580 | 30 | 38 | 45 |
| JUL | | | | | | | |
| 22... | 1845 | 176 | 4020 | 1910 | 43 | 51 | 58 |

| DATE | SED. SUSP. FALL DIAM. PERCENT FINER THAN .016 MM | SED. SUSP. FALL DIAM. PERCENT FINER THAN .031 MM | SED. SUSP. SIEVE DIAM. PERCENT FINER THAN .062 MM | SED. SUSP. SIEVE DIAM. PERCENT FINER THAN .125 MM | SED. SUSP. SIEVE DIAM. PERCENT FINER THAN .250 MM | SED. SUSP. SIEVE DIAM. PERCENT FINER THAN .500 MM | SED. SUSP. SIEVE DIAM. PERCENT FINER THAN 1.00 MM |
|----------|---|---|--|--|--|--|--|
| APR 1993 | | | | | | | |
| 15... | 75 | 82 | 94 | 98 | 99 | 99.8 | 100 |
| 29... | 42 | 56 | 75 | 90 | 97 | 99.4 | 99.8 |
| MAY | | | | | | | |
| 01... | 76 | 82 | 93 | 96 | 98 | 99 | 100 |
| 06... | 82 | 83 | 98 | 99 | 99.6 | 100 | 100 |
| 26... | 55 | 66 | 78 | 88 | 96 | 99 | 99.8 |
| JUL | | | | | | | |
| 22... | 70 | 78 | 94 | 99 | 98.8 | 99.5 | 100 |

RIO GRANDE DE LOIZA BASIN

50055100 RIO CAGUITAS NEAR AGUAS BUENAS, PR--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993

SILT AND CLAY PERCENT OF SUSPENDED SEDIMENT

| DATE | TIME | STREAM- FLOW, INSTAN- TANEOUS (CFS) | SEDI- MENT, SUS- PENDE (MG/L) | SEDI- MENT, DIS- CHARGE, SUS- PENDE (T/DAY) | SED. SUSP. SIEVE DIAM. PERCENT FINER THAN .062 MM |
|----------|------|---|---|---|--|
| OCT 1992 | | | | | |
| 16... | 1205 | 5.5 | 308 | 4.6 | 98 |
| NOV | | | | | |
| 25... | 1455 | 6.1 | 145 | 2.4 | 99 |
| DEC | | | | | |
| 01... | 1942 | 22 | 3820 | 227 | 94 |
| JAN 1993 | | | | | |
| 07... | 1832 | 83 | 2970 | 666 | 97 |
| APR | | | | | |
| 12... | 1755 | 13 | 651 | 23 | 93 |
| 29... | 2125 | 22 | 1510 | 90 | 96 |
| 30... | 1140 | 11 | 161 | 4.8 | 81 |
| MAY | | | | | |
| 01... | 1555 | 56 | 2400 | 363 | 86 |
| 06... | 1745 | 12 | 2590 | 84 | 92 |
| 26... | 1625 | 84 | 1660 | 376 | 95 |
| JUL | | | | | |
| 13... | 2305 | 27 | 728 | 53 | 97 |
| 22... | 2300 | 26 | 1050 | 74 | 98 |
| SEP | | | | | |
| 29... | 1015 | 9.9 | 419 | 11 | 97 |

RIO GRANDE DE LOIZA BASIN

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50055170 RIO CAGUITAS NEAR CAGUAS, PR

LOCATION.--Lat 18°13'59", long 66°02'53", Hydrologic Unit 21010005, on left bank, 0.9 mi (1.4 km) southwest from Plaza de Caguas, 0.6 mi (1.0 km) northeast from Escuela Bunker, and 1.2 mi (1.9 km) northwest from Escuela Antonio S. Pedreira.

DRAINAGE AREA.--8.27 mi² (21.42 km²).

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--May 1992 to current year.

GAGE.--Water-stage recorder and crest-stage gage. Elevation of gage is 216 ft (66 m), from topographic map.

REMARKS.--Records fair except those for estimated daily discharges, which are poor. Gage-height and precipitation satellite telemetry at station.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1991 TO SEPTEMBER 1992
DAILY MEAN VALUES

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|-------|-----|-----|-----|-----|-----|-----|-----|------|-------|-------|-------|-------|
| 1 | | | | | | | | | e7.0 | e5.1 | e5.0 | 4.8 |
| 2 | | | | | | | | | e6.6 | e5.6 | e5.2 | 4.5 |
| 3 | | | | | | | | | e6.6 | e5.2 | e5.8 | 5.1 |
| 4 | | | | | | | | | e6.4 | e5.6 | e8.0 | 5.4 |
| 5 | | | | | | | | | e7.0 | e5.6 | e25 | 17 |
| 6 | | | | | | | | | e6.2 | e6.4 | e120 | 13 |
| 7 | | | | | | | | | e6.0 | e5.4 | e16 | 8.5 |
| 8 | | | | | | | | | e8.6 | e5.4 | e8.2 | 7.5 |
| 9 | | | | | | | | | e8.0 | e6.4 | e7.0 | 21 |
| 10 | | | | | | | | | e15 | e5.8 | e6.2 | 6.5 |
| 11 | | | | | | | | | 9.5 | e5.4 | e5.8 | 5.4 |
| 12 | | | | | | | | | 13 | e6.8 | e6.0 | 4.9 |
| 13 | | | | | | | | e16 | 14 | e5.4 | e6.2 | 4.8 |
| 14 | | | | | | | | 7.5 | 7.9 | e5.0 | e5.6 | 5.3 |
| 15 | | | | | | | | 6.4 | 7.1 | e4.9 | e6.0 | 6.8 |
| 16 | | | | | | | | 9.3 | 11 | e5.4 | e5.4 | 13 |
| 17 | | | | | | | | 38 | 6.1 | e7.4 | e5.0 | 11 |
| 18 | | | | | | | | 13 | 6.1 | e11 | e4.9 | 7.8 |
| 19 | | | | | | | | 6.2 | 5.3 | e7.2 | e4.8 | 131 |
| 20 | | | | | | | | 9.8 | 4.5 | e6.0 | e4.6 | 111 |
| 21 | | | | | | | | 8.3 | 6.7 | e5.6 | e4.6 | 75 |
| 22 | | | | | | | | 12 | 5.6 | e7.8 | e4.6 | 117 |
| 23 | | | | | | | | 88 | 4.8 | e11 | e4.7 | 48 |
| 24 | | | | | | | | 143 | 5.0 | e6.8 | e5.0 | 17 |
| 25 | | | | | | | | 44 | e5.4 | e8.0 | e4.8 | 12 |
| 26 | | | | | | | | 25 | e5.4 | e10 | e4.5 | 9.5 |
| 27 | | | | | | | | 14 | e5.2 | e6.8 | 5.0 | 8.8 |
| 28 | | | | | | | | e10 | e5.6 | e6.8 | 5.0 | 8.4 |
| 29 | | | | | | | | e8.2 | e5.8 | e5.4 | 5.0 | 7.8 |
| 30 | | | | | | | | e7.6 | e5.8 | e4.8 | 5.2 | 8.0 |
| 31 | | | | | | | | e7.2 | --- | e5.0 | 6.6 | --- |
| TOTAL | | | | | | | | --- | 217.2 | 199.0 | 315.7 | 705.8 |
| MEAN | | | | | | | | --- | 7.24 | 6.42 | 10.2 | 23.5 |
| MAX | | | | | | | | --- | 15 | 11 | 120 | 131 |
| MIN | | | | | | | | --- | 4.5 | 4.8 | 4.5 | 4.5 |
| AC-FT | | | | | | | | --- | 431 | 395 | 626 | 1400 |
| CFSM | | | | | | | | --- | .88 | .78 | 1.23 | 2.84 |
| IN. | | | | | | | | --- | .98 | .90 | 1.42 | 3.17 |

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1992 - 1992, BY WATER YEAR (WY)

| | | | | | |
|------|-----|------|------|------|------|
| MEAN | --- | 7.24 | 6.42 | 10.2 | 23.5 |
| MAX | --- | 7.24 | 6.42 | 10.2 | 23.5 |
| (WY) | --- | 1992 | 1992 | 1992 | 1992 |
| MIN | --- | 7.24 | 6.42 | 10.2 | 23.5 |
| (WY) | --- | 1992 | 1992 | 1992 | 1992 |

e Estimated

RIO GRANDE DE LOIZA BASIN

50055170 RIO CAGUITAS NEAR CAGUAS, PR--Continued

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993
DAILY MEAN VALUES

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|-------|-------|--------|--------|------|-------|-------|-------|------|-------|--------|------|-------|
| 1 | 9.0 | 8.3 | 57 | 22 | 11 | 7.8 | 5.6 | 94 | 11 | 11 | 16 | 11 |
| 2 | 8.5 | 6.6 | 27 | 20 | 11 | 7.6 | 5.5 | 130 | 11 | 11 | 15 | 11 |
| 3 | 8.1 | 32 | 17 | 18 | 13 | 6.9 | 5.9 | 43 | 10 | 15 | 15 | 11 |
| 4 | 7.9 | 51 | 16 | 18 | 10 | 6.8 | 5.8 | 20 | 9.9 | 11 | 15 | 13 |
| 5 | 6.8 | 23 | 12 | 18 | 10 | 6.6 | 6.1 | 18 | 9.9 | 9.5 | 15 | 17 |
| 6 | 106 | 11 | 12 | 16 | 9.7 | 6.0 | 6.2 | 68 | 9.0 | 9.2 | 14 | 22 |
| 7 | 44 | 8.5 | 9.9 | 106 | 9.7 | 6.4 | 6.3 | 31 | 8.9 | 14 | 14 | 14 |
| 8 | 14 | 7.5 | 9.3 | 44 | 9.5 | 6.5 | 11 | 18 | 9.9 | 11 | 14 | 12 |
| 9 | 11 | 7.8 | 9.1 | 21 | 9.3 | 6.7 | 18 | 111 | 9.7 | 8.8 | 13 | 11 |
| 10 | 26 | 32 | 8.8 | 19 | 9.1 | 6.3 | 13 | 41 | 10 | 8.4 | 14 | 11 |
| 11 | 14 | 8.4 | 8.6 | 18 | 9.4 | 5.8 | 12 | 22 | 9.8 | 447 | 14 | 11 |
| 12 | 8.9 | 6.8 | 8.0 | 17 | 9.4 | 5.4 | 18 | 18 | 9.7 | 56 | 13 | 9.2 |
| 13 | 7.3 | 6.4 | 7.7 | 16 | 9.8 | 5.9 | 43 | 16 | 9.8 | 67 | 13 | 10 |
| 14 | 6.7 | 5.9 | 37 | 15 | 8.6 | 6.0 | 17 | 307 | 12 | 32 | 13 | 9.9 |
| 15 | 6.6 | 6.1 | 20 | 14 | 8.5 | 5.6 | 251 | 32 | 13 | 31 | 15 | 11 |
| 16 | 6.0 | 6.2 | 9.5 | 14 | 12 | 6.3 | 53 | 18 | 11 | 22 | 168 | 15 |
| 17 | 6.0 | 42 | 9.3 | 13 | 12 | 6.7 | 19 | 15 | 9.5 | 16 | 24 | 11 |
| 18 | e28 | 88 | 8.5 | 13 | 8.8 | 6.5 | 14 | 13 | 11 | 15 | 16 | 204 |
| 19 | e12 | 25 | 8.2 | 13 | 8.4 | 6.4 | 12 | 13 | 80 | 17 | 14 | 25 |
| 20 | e8.3 | 11 | 8.1 | 12 | 8.2 | 6.1 | 50 | 13 | 57 | 16 | 13 | 20 |
| 21 | e7.0 | 9.0 | 7.5 | 12 | 8.6 | 5.5 | 25 | 12 | 16 | 16 | 13 | 11 |
| 22 | 7.6 | 23 | 17 | 27 | 8.5 | 5.6 | 19 | 12 | 16 | 111 | 36 | 9.5 |
| 23 | 7.3 | 15 | 9.5 | 37 | 8.3 | 6.1 | 13 | 49 | 12 | 163 | 24 | 16 |
| 24 | 9.3 | 9.9 | 11 | 14 | 7.4 | 6.6 | 13 | 16 | 11 | 139 | 15 | 13 |
| 25 | 7.5 | 8.0 | 40 | 13 | 6.9 | 6.2 | 12 | 14 | 11 | 38 | 14 | 9.4 |
| 26 | 6.2 | 7.5 | 401 | 13 | 7.0 | 6.4 | 16 | 57 | 10 | 25 | 13 | 11 |
| 27 | 5.9 | 147 | 103 | 12 | 6.7 | 6.2 | 25 | 22 | 9.8 | 21 | 13 | 9.4 |
| 28 | 5.4 | 239 | 32 | 12 | 6.7 | 5.7 | 21 | 16 | 12 | 18 | 12 | 20 |
| 29 | 6.7 | 44 | 115 | 12 | --- | 6.0 | 86 | 13 | 12 | 17 | 13 | 27 |
| 30 | 6.1 | 227 | 52 | 11 | --- | 5.9 | 33 | 13 | 15 | 17 | 12 | 14 |
| 31 | 5.7 | --- | 56 | 11 | --- | 5.6 | --- | 12 | --- | 17 | 12 | --- |
| TOTAL | 419.8 | 1122.9 | 1147.0 | 621 | 257.5 | 194.1 | 835.4 | 1277 | 446.9 | 1409.9 | 625 | 599.4 |
| MEAN | 13.5 | 37.4 | 37.0 | 20.0 | 9.20 | 6.26 | 27.8 | 41.2 | 14.9 | 45.5 | 20.2 | 20.0 |
| MAX | 106 | 239 | 401 | 106 | 13 | 7.8 | 251 | 307 | 80 | 447 | 168 | 204 |
| MIN | 5.4 | 5.9 | 7.5 | 11 | 6.7 | 5.4 | 5.5 | 12 | 8.9 | 8.4 | 12 | 9.2 |
| AC-FT | 833 | 2230 | 2280 | 1230 | 511 | 385 | 1660 | 2530 | 886 | 2800 | 1240 | 1190 |
| CFSM | 1.64 | 4.53 | 4.47 | 2.42 | 1.11 | .76 | 3.37 | 4.98 | 1.80 | 5.50 | 2.44 | 2.42 |
| IN. | 1.89 | 5.05 | 5.16 | 2.79 | 1.16 | .87 | 3.76 | 5.74 | 2.01 | 6.34 | 2.81 | 2.70 |

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1992 - 1993, BY WATER YEAR (WY)

| | 1992 | 1993 | 1993 | 1993 | 1993 | 1993 | 1993 | 1993 | 1992 | 1992 | 1992 | 1993 |
|------|------|------|------|------|------|------|------|------|------|------|------|------|
| MEAN | 13.5 | 37.4 | 37.0 | 20.0 | 9.20 | 6.26 | 27.8 | 41.2 | 11.1 | 25.9 | 15.2 | 21.8 |
| MAX | 13.5 | 37.4 | 37.0 | 20.0 | 9.20 | 6.26 | 27.8 | 41.2 | 14.9 | 45.5 | 20.2 | 23.5 |
| (WY) | 1993 | 1993 | 1993 | 1993 | 1993 | 1993 | 1993 | 1993 | 1993 | 1993 | 1993 | 1992 |
| MIN | 13.5 | 37.4 | 37.0 | 20.0 | 9.20 | 6.26 | 27.8 | 41.2 | 7.24 | 6.42 | 10.2 | 20.0 |
| (WY) | 1993 | 1993 | 1993 | 1993 | 1993 | 1993 | 1993 | 1993 | 1992 | 1992 | 1992 | 1993 |

SUMMARY STATISTICS

FOR 1993 WATER YEAR

WATER YEARS 1992 - 1993

| | | | |
|--------------------------|--------|--------|------|
| ANNUAL TOTAL | 8955.9 | | |
| ANNUAL MEAN | 24.5 | | |
| HIGHEST ANNUAL MEAN | | 24.5 | 1993 |
| LOWEST ANNUAL MEAN | | 24.5 | 1993 |
| HIGHEST DAILY MEAN | 447 | Jul 11 | 1993 |
| LOWEST DAILY MEAN | 5.4 | Oct 28 | 1992 |
| ANNUAL SEVEN-DAY MINIMUM | 5.7 | Mar 28 | 1992 |
| INSTANTANEOUS PEAK FLOW | 3010 | Sep 18 | 1993 |
| INSTANTANEOUS PEAK STAGE | 26.10 | Sep 18 | 1993 |
| ANNUAL RUNOFF (AC-FT) | 17760 | | |
| ANNUAL RUNOFF (CFSM) | 2.97 | | |
| ANNUAL RUNOFF (INCHES) | 40.29 | | |
| 10 PERCENT EXCEEDS | 44 | | |
| 50 PERCENT EXCEEDS | 12 | | |
| 90 PERCENT EXCEEDS | 6.4 | | |

e Estimated

RIO GRANDE DE LOIZA BASIN

50055225 RIO CAGUITAS AT VILLA BLANCA AT CAGUAS, PR

LOCATION.--Lat 18°14'55", long 66°01'40", Hydrologic Unit 21010005, on left bank, at C. 4 street Villa Blanca housing area at Caguas, 1.8 mi (2.9 km) upstream from Río Grande de Loíza, and 0.95 mi (1.53 km) northeast from Caguas Plaza.

DRAINAGE AREA.--11.71 mi² (30.33 km²).

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--December 1990 to current year.

GAGE.--Water-stage recorder. Elevation of gage is 164 ft (50 m), from topographic map.

REMARKS.--Records fair except those for estimated daily discharges, which are poor. Gage-height and precipitation satellite telemetry at station.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993
DAILY MEAN VALUES

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|-------|-------|------|------|------|------|-------|--------|------|------|------|------|------|
| 1 | 17 | 18 | 54 | 34 | 23 | 16 | 7.3 | 93 | 27 | 26 | e29 | e22 |
| 2 | 17 | 13 | 37 | 34 | 22 | 17 | 6.2 | 106 | 24 | 30 | e27 | e22 |
| 3 | 17 | 76 | 29 | 30 | 30 | 15 | 6.6 | 45 | 22 | 36 | e27 | e21 |
| 4 | 18 | 59 | 31 | 30 | 23 | 14 | 6.0 | 29 | 20 | 28 | e26 | e25 |
| 5 | 15 | 34 | 25 | 29 | 25 | 14 | 6.5 | 27 | 17 | 23 | e25 | e27 |
| 6 | 251 | 25 | 26 | 27 | 25 | 13 | 6.4 | 51 | 16 | 21 | e26 | e42 |
| 7 | 90 | 20 | 22 | 85 | 24 | 13 | 9.4 | 35 | 15 | 37 | e25 | e26 |
| 8 | 27 | 18 | 20 | 43 | 23 | 12 | 16 | 26 | 15 | 33 | e26 | e24 |
| 9 | 24 | 17 | 18 | 30 | 22 | 11 | 23 | 80 | 17 | 20 | e24 | e24 |
| 10 | 48 | 76 | 18 | 28 | 21 | 11 | 18 | 39 | 18 | 21 | e24 | e26 |
| 11 | 28 | 21 | 17 | 28 | 21 | 10 | 19 | 31 | 16 | 851 | e25 | e23 |
| 12 | 19 | 16 | 17 | 29 | 22 | 9.5 | 25 | 26 | 17 | 71 | e21 | e22 |
| 13 | 15 | 16 | 16 | 27 | 22 | 9.8 | 40 | 24 | 20 | 88 | e21 | e22 |
| 14 | 18 | 15 | 42 | 25 | 18 | 10 | 31 | 597 | 35 | 51 | e23 | e22 |
| 15 | 15 | 17 | 34 | 26 | 17 | 9.9 | 473 | 57 | 41 | 48 | e28 | e25 |
| 16 | 14 | 14 | 20 | 25 | 24 | 15 | 49 | 39 | 25 | 41 | e210 | e31 |
| 17 | 14 | 61 | 23 | 25 | 23 | 16 | 25 | 33 | 18 | 31 | e38 | e25 |
| 18 | 48 | 84 | 21 | 25 | 17 | 15 | 17 | 31 | 27 | e28 | e28 | e273 |
| 19 | 25 | 34 | 20 | 24 | 17 | 13 | 14 | 30 | 151 | e28 | e27 | e40 |
| 20 | 16 | 21 | 21 | 25 | 16 | 13 | 46 | 33 | 75 | e30 | e27 | e48 |
| 21 | 11 | 23 | 17 | 25 | 17 | 10 | 32 | 27 | 34 | e27 | e25 | e27 |
| 22 | 16 | 29 | 34 | 44 | 16 | 10 | 25 | 25 | 44 | e181 | e75 | e24 |
| 23 | 10 | 26 | 25 | 42 | 15 | 12 | 17 | 57 | 31 | e168 | e48 | e35 |
| 24 | 17 | 24 | 27 | 28 | 15 | 13 | 15 | 33 | 28 | e130 | e29 | e25 |
| 25 | 14 | 19 | 41 | 27 | 13 | 11 | 13 | 33 | 26 | e54 | e28 | e24 |
| 26 | 9.8 | 17 | 876 | 27 | 15 | 11 | 28 | 78 | 24 | e45 | e25 | e25 |
| 27 | 7.5 | 159 | 61 | 26 | 15 | 10 | 38 | 50 | 22 | e38 | e25 | e23 |
| 28 | 5.8 | 398 | 37 | 25 | 13 | 8.7 | 34 | 35 | 26 | e34 | e24 | e34 |
| 29 | 12 | 53 | 81 | 26 | --- | 7.9 | 98 | 30 | 33 | e32 | e24 | e42 |
| 30 | 8.5 | 300 | 48 | 24 | --- | 7.4 | 50 | 28 | 38 | e31 | e24 | e27 |
| 31 | 8.9 | --- | 51 | 23 | --- | 7.5 | --- | 26 | --- | e30 | e23 | --- |
| TOTAL | 856.5 | 1703 | 1809 | 946 | 554 | 365.7 | 1194.4 | 1854 | 922 | 2312 | 1057 | 1076 |
| MEAN | 27.6 | 56.8 | 58.4 | 30.5 | 19.8 | 11.8 | 39.8 | 59.8 | 30.7 | 74.6 | 34.1 | 35.9 |
| MAX | 251 | 398 | 876 | 85 | 30 | 17 | 473 | 597 | 151 | 851 | 210 | 273 |
| MIN | 5.8 | 13 | 16 | 23 | 13 | 7.4 | 6.0 | 24 | 15 | 20 | 21 | 21 |
| MSD | 16 | 23 | 26 | 27 | 21 | 11 | 21 | 33 | 24 | 33 | 26 | 25 |
| AC-FT | 1700 | 3380 | 3590 | 1880 | 1100 | 725 | 2370 | 3680 | 1830 | 4590 | 2100 | 2130 |
| CFSM | 2.36 | 4.85 | 4.98 | 2.61 | 1.69 | 1.01 | 3.40 | 5.11 | 2.62 | 6.37 | 2.91 | 3.06 |
| IN. | 2.72 | 5.41 | 5.75 | 3.01 | 1.76 | 1.16 | 3.79 | 5.89 | 2.93 | 7.34 | 3.36 | 3.42 |

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1991 - 1993, BY WATER YEAR (WY)

| | MEAN | 23.8 | 45.6 | 37.8 | 56.9 | 18.0 | 12.0 | 20.7 | 35.8 | 19.4 | 37.3 | 28.0 | 32.2 |
|------|------|------|------|------|------|------|------|------|------|------|------|------|------|
| MAX | 27.6 | 56.8 | 58.4 | 120 | 23.8 | 15.3 | 39.8 | 59.8 | 30.7 | 74.6 | 36.1 | 44.2 | |
| (WY) | 1993 | 1993 | 1993 | 1992 | 1991 | 1991 | 1993 | 1993 | 1993 | 1993 | 1992 | 1992 | |
| MIN | 20.0 | 34.5 | 17.2 | 20.3 | 10.8 | 8.76 | 9.81 | 17.2 | 10.5 | 11.7 | 13.8 | 16.4 | |
| (WY) | 1992 | 1992 | 1992 | 1991 | 1992 | 1992 | 1992 | 1991 | 1991 | 1992 | 1991 | 1991 | |

SUMMARY STATISTICS

FOR 1992 CALENDAR YEAR

FOR 1993 WATER YEAR

WATER YEARS 1991 - 1993

| | | | |
|--------------------------|---------|---------|-------|
| ANNUAL TOTAL | 13220.3 | 14649.6 | |
| ANNUAL MEAN | 36.1 | 40.1 | 35.1 |
| HIGHEST ANNUAL MEAN | | | 40.1 |
| LOWEST ANNUAL MEAN | | | 30.2 |
| HIGHEST DAILY MEAN | 1930 | Jan 5 | 1930 |
| LOWEST DAILY MEAN | 5.8 | Oct 28 | 5.6 |
| ANNUAL SEVEN-DAY MINIMUM | 6.9 | Mar 7 | 5.9 |
| INSTANTANEOUS PEAK FLOW | | | 13400 |
| INSTANTANEOUS PEAK STAGE | | | 19.91 |
| ANNUAL RUNOFF (AC-FT) | 26220 | 29060 | 25460 |
| ANNUAL RUNOFF (CFSM) | 3.08 | 3.43 | 3.00 |
| ANNUAL RUNOFF (INCHES) | 42.00 | 46.54 | 40.78 |
| 10 PERCENT EXCEEDS | 44 | 53 | 42 |
| 50 PERCENT EXCEEDS | 15 | 25 | 16 |
| 90 PERCENT EXCEEDS | 8.1 | 13 | 7.8 |

e Estimated

RIO GRANDE DE LOIZA BASIN

50055225 RIO CAGUITAS AT VILLA BLANCA AT CAGUAS, PR--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORDS.-- Water years 1991 to current year.

PERIOD OF DAILY RECORD.--

SUSPENDED-SEDIMENT DISCHARGE: December 1990 to September 1993.

INSTRUMENTATION.-- DH-48 and automatic sediment sampler.

EXTREMES FOR PERIOD OF DAILY RECORD.--

SEDIMENT CONCENTRATION: Maximum daily mean, 1,430 mg/L Jan. 05, 1992; Minimum daily mean, 1 mg/L Oct. 01, 1992.

SEDIMENT LOADS: Maximum daily mean, 8,820 tons (8,000 tonnes) Jan. 05, 1992; Minimum daily mean, 0.08 ton (0.07 tonne) several days.

EXTREMES FOR WATER YEAR 1993.--

| Water Year | Suspended-sediment concentration (mg/L) | | Suspended-sediment discharge (tons per day) | |
|------------|---|-------------------|---|--------------------|
| | maximum | minimum | maximum | minimum |
| 1993 | 1,350 (May 14) | 1 (Oct. 01, 1992) | 2,900 (July 11) | .08 (Several days) |

SEDIMENT DISCHARGE, SUSPENDED (TONS/DAY), WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993

| DAY | MEAN DISCHARGE (CFS) | MEAN CONCENTRATION (MG/L) | SEDIMENT DISCHARGE (TONS/DAY) | MEAN DISCHARGE (CFS) | MEAN CONCENTRATION (MG/L) | SEDIMENT DISCHARGE (TONS/DAY) | MEAN DISCHARGE (CFS) | MEAN CONCENTRATION (MG/L) | SEDIMENT DISCHARGE (TONS/DAY) |
|---------|----------------------|---------------------------|-------------------------------|----------------------|---------------------------|-------------------------------|----------------------|---------------------------|-------------------------------|
| | | | | | | | | | |
| OCTOBER | | | | | | | | | |
| 1 | 17 | 1 | 1.0 | 18 | 38 | 3.2 | 54 | 96 | 16 |
| 2 | 17 | 14 | .62 | 13 | 29 | 1.1 | 37 | 64 | 6.8 |
| 3 | 17 | 9 | .42 | 76 | 265 | 165 | 29 | 45 | 3.6 |
| 4 | 18 | 8 | .38 | 59 | 108 | 19 | 31 | 47 | 4.3 |
| 5 | 15 | 7 | .29 | 34 | 54 | 5.4 | 25 | 36 | 2.5 |
| 6 | 251 | 419 | 829 | 25 | 141 | 9.6 | 26 | 21 | 1.5 |
| 7 | 90 | 257 | 200 | 20 | 213 | 11 | 22 | 23 | 1.4 |
| 8 | 27 | 47 | 3.7 | 18 | 185 | 8.8 | 20 | 27 | 1.5 |
| 9 | 24 | 81 | 6.3 | 17 | 166 | 7.8 | 18 | 31 | 1.5 |
| 10 | 48 | 188 | 54 | 76 | 215 | 84 | 18 | 30 | 1.4 |
| 11 | 28 | 224 | 17 | 21 | 38 | 2.2 | 17 | 28 | 1.3 |
| 12 | 19 | 203 | 11 | 16 | 29 | 1.3 | 17 | 27 | 1.2 |
| 13 | 15 | 184 | 7.5 | 16 | 26 | 1.1 | 16 | 23 | .97 |
| 14 | 18 | 142 | 6.9 | 15 | 24 | .94 | 42 | 81 | 26 |
| 15 | 15 | 101 | 3.9 | 17 | 118 | 6.4 | 34 | 84 | 9.4 |
| 16 | 14 | 77 | 2.9 | 14 | 210 | 7.7 | 20 | 44 | 2.4 |
| 17 | 14 | 50 | 1.9 | 61 | 328 | 82 | 23 | 27 | 1.7 |
| 18 | 48 | 133 | 56 | 84 | 215 | 84 | 21 | 20 | 1.3 |
| 19 | 25 | 64 | 4.9 | 34 | 199 | 19 | 20 | 38 | 2.1 |
| 20 | 16 | 30 | 1.3 | 21 | 163 | 9.1 | 21 | 95 | 5.9 |
| 21 | 11 | 24 | .74 | 23 | 97 | 5.9 | 17 | 107 | 4.9 |
| 22 | 16 | 45 | 2.3 | 29 | 50 | 4.5 | 34 | 71 | 7.8 |
| 23 | 10 | 33 | .93 | 26 | 50 | 3.9 | 25 | 39 | 2.7 |
| 24 | 17 | 29 | 1.4 | 24 | 43 | 2.9 | 27 | 46 | 3.5 |
| 25 | 14 | 42 | 1.6 | 19 | 36 | 1.8 | 41 | 70 | 10 |
| 26 | 9.8 | 39 | 1.0 | 17 | 31 | 1.4 | 876 | 494 | 2630 |
| 27 | 7.5 | 34 | .72 | 159 | 516 | 615 | 61 | 114 | 24 |
| 28 | 5.8 | 29 | .45 | 398 | 533 | 1170 | 37 | 31 | 3.1 |
| 29 | 12 | 31 | 1.3 | 53 | 115 | 20 | 81 | 164 | 50 |
| 30 | 8.5 | 20 | .46 | 300 | 764 | 1000 | 48 | 65 | 10 |
| 31 | 8.9 | 17 | .42 | --- | --- | --- | 51 | 88 | 15 |
| TOTAL | 856.5 | --- | 1220.33 | 1703 | --- | 3354.04 | 1809 | --- | 2853.77 |

RIO GRANDE DE LOIZA BASIN

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50055225 RIO CAGUITAS AT VILLA BLANCA AT CAGUAS, PR--Continued

SEDIMENT DISCHARGE, SUSPENDED (TONS/DAY), WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993

| DAY | MEAN DISCHARGE (CFS) | MEAN CONCEN- TRATION (MG/L) | SEDIMENT DISCHARGE (TONS/DAY) | MEAN DISCHARGE (CFS) | MEAN CONCEN- TRATION (MG/L) | SEDIMENT DISCHARGE (TONS/DAY) | MEAN DISCHARGE (CFS) | MEAN CONCEN- TRATION (MG/L) | SEDIMENT DISCHARGE (TONS/DAY) |
|---------|----------------------------|--------------------------------------|-------------------------------------|----------------------------|--------------------------------------|-------------------------------------|----------------------------|--------------------------------------|-------------------------------------|
| JANUARY | | | FEBRUARY | | | MARCH | | | |
| 1 | 34 | 45 | 4.1 | 23 | 91 | 5.6 | 16 | 49 | 2.0 |
| 2 | 34 | 33 | 3.2 | 22 | 33 | 1.9 | 17 | 18 | .83 |
| 3 | 30 | 14 | 1.1 | 30 | 54 | 4.9 | 15 | 19 | .77 |
| 4 | 30 | 12 | .96 | 23 | 32 | 2.0 | 14 | 18 | .69 |
| 5 | 29 | 12 | .94 | 25 | 19 | 1.3 | 14 | 18 | .66 |
| 6 | 27 | 12 | .88 | 25 | 18 | 1.2 | 13 | 18 | .63 |
| 7 | 85 | 395 | 245 | 24 | 18 | 1.1 | 13 | 19 | .69 |
| 8 | 43 | 76 | 9.6 | 23 | 17 | 1.1 | 12 | 29 | .94 |
| 9 | 30 | 53 | 4.3 | 22 | 15 | .92 | 11 | 42 | 1.2 |
| 10 | 28 | 38 | 2.9 | 21 | 15 | .82 | 11 | 47 | 1.4 |
| 11 | 28 | 27 | 2.1 | 21 | 15 | .81 | 10 | 18 | .51 |
| 12 | 29 | 18 | 1.4 | 22 | 22 | 1.3 | 9.5 | 16 | .41 |
| 13 | 27 | 14 | 1.0 | 22 | 31 | 1.8 | 9.8 | 23 | .60 |
| 14 | 25 | 10 | .69 | 18 | 41 | 2.0 | 10 | 23 | .64 |
| 15 | 26 | 11 | .81 | 17 | 46 | 2.1 | 9.9 | 21 | .56 |
| 16 | 25 | 14 | .95 | 24 | 56 | 4.2 | 15 | 20 | .81 |
| 17 | 25 | 14 | .98 | 23 | 29 | 1.8 | 16 | 19 | .81 |
| 18 | 25 | 16 | 1.1 | 17 | 15 | .69 | 15 | 17 | .71 |
| 19 | 24 | 19 | 1.2 | 17 | 9 | .43 | 13 | 18 | .63 |
| 20 | 25 | 21 | 1.4 | 16 | 12 | .50 | 13 | 25 | .86 |
| 21 | 25 | 26 | 1.8 | 17 | 17 | .75 | 10 | 35 | .93 |
| 22 | 44 | 75 | 13 | 16 | 20 | .87 | 10 | 42 | 1.2 |
| 23 | 42 | 72 | 9.0 | 15 | 25 | .99 | 12 | 30 | .99 |
| 24 | 28 | 41 | 3.2 | 15 | 34 | 1.4 | 13 | 16 | .56 |
| 25 | 27 | 40 | 2.9 | 13 | 47 | 1.7 | 11 | 8 | .25 |
| 26 | 27 | 40 | 2.9 | 15 | 58 | 2.3 | 11 | 6 | .18 |
| 27 | 26 | 39 | 2.7 | 15 | 63 | 2.6 | 10 | 6 | .18 |
| 28 | 25 | 38 | 2.6 | 13 | 68 | 2.4 | 8.7 | 5 | .13 |
| 29 | 26 | 181 | 13 | --- | --- | --- | 7.9 | 4 | .08 |
| 30 | 24 | 184 | 12 | --- | --- | --- | 7.4 | 4 | .08 |
| 31 | 23 | 141 | 8.6 | --- | --- | --- | 7.5 | 5 | .11 |
| TOTAL | 946 | --- | 356.31 | 554 | --- | 49.48 | 365.7 | --- | 21.04 |

RIO GRANDE DE LOIZA BASIN

50055225 RIO CAGUITAS AT VILLA BLANCA AT CAGUAS, PR--Continued

SEDIMENT DISCHARGE, SUSPENDED (TONS/DAY), WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993

| DAY | MEAN DISCHARGE (CFS) | MEAN CONCEN- TRATION (MG/L) | SEDIMENT DISCHARGE (TONS/DAY) | MEAN DISCHARGE (CFS) | MEAN CONCEN- TRATION (MG/L) | SEDIMENT DISCHARGE (TONS/DAY) | MEAN DISCHARGE (CFS) | MEAN CONCEN- TRATION (MG/L) | SEDIMENT DISCHARGE (TONS/DAY) |
|-------|----------------------------|--------------------------------------|-------------------------------------|----------------------------|--------------------------------------|-------------------------------------|----------------------------|--------------------------------------|-------------------------------------|
| APRIL | | | MAY | | | JUNE | | | |
| 1 | 7.3 | 23 | .46 | 93 | 263 | 139 | 27 | 10 | .80 |
| 2 | 6.2 | 18 | .31 | 106 | 228 | 91 | 24 | 16 | 1.0 |
| 3 | 6.6 | 8 | .15 | 45 | 111 | 14 | 22 | 20 | 1.2 |
| 4 | 6.0 | 8 | .13 | 29 | 77 | 6.0 | 20 | 24 | 1.3 |
| 5 | 6.5 | 10 | .17 | 27 | 55 | 4.2 | 17 | 23 | 1.0 |
| 6 | 6.4 | 10 | .17 | 51 | 130 | 27 | 16 | 20 | .85 |
| 7 | 9.4 | 17 | .93 | 35 | 257 | 25 | 15 | 17 | .65 |
| 8 | 16 | 28 | 2.3 | 26 | 152 | 11 | 15 | 16 | .64 |
| 9 | 23 | 33 | 2.5 | 80 | 255 | 63 | 17 | 15 | .68 |
| 10 | 18 | 29 | 1.5 | 39 | 190 | 20 | 18 | 13 | .60 |
| 11 | 19 | 32 | 2.5 | 31 | 167 | 14 | 16 | 12 | .52 |
| 12 | 25 | 17 | 1.2 | 26 | 142 | 10 | 17 | 11 | .48 |
| 13 | 40 | 47 | 10 | 24 | 106 | 6.9 | 20 | 23 | 2.1 |
| 14 | 31 | 45 | 4.0 | 597 | 1350 | 2270 | 35 | 63 | 9.7 |
| 15 | 473 | 406 | 1540 | 57 | 64 | 11 | 41 | 98 | 15 |
| 16 | 49 | 79 | 13 | 39 | 40 | 4.2 | 25 | 169 | 12 |
| 17 | 25 | 41 | 2.7 | 33 | 40 | 3.6 | 18 | 150 | 7.3 |
| 18 | 17 | 29 | 1.4 | 31 | 40 | 3.4 | 27 | 138 | 18 |
| 19 | 14 | 12 | .44 | 30 | 41 | 3.3 | 151 | 373 | 212 |
| 20 | 46 | 77 | 21 | 33 | 59 | 5.7 | 75 | 143 | 43 |
| 21 | 32 | 59 | 5.7 | 27 | 42 | 3.1 | 34 | 34 | 3.2 |
| 22 | 25 | 42 | 2.8 | 25 | 35 | 2.4 | 44 | 71 | 9.4 |
| 23 | 17 | 32 | 1.5 | 57 | 116 | 40 | 31 | 44 | 3.7 |
| 24 | 15 | 28 | 1.2 | 33 | 57 | 5.1 | 28 | 52 | 3.8 |
| 25 | 13 | 23 | .82 | 33 | 58 | 5.5 | 26 | 65 | 4.5 |
| 26 | 28 | 73 | 26 | 78 | 151 | 64 | 24 | 72 | 4.7 |
| 27 | 38 | 94 | 23 | 50 | 92 | 14 | 22 | 51 | 3.0 |
| 28 | 34 | 76 | 13 | 35 | 53 | 5.1 | 26 | 45 | 3.3 |
| 29 | 98 | 320 | 267 | 30 | 25 | 2.0 | 33 | 57 | 5.6 |
| 30 | 50 | 89 | 17 | 28 | 12 | .86 | 38 | 61 | 6.6 |
| 31 | --- | --- | --- | 26 | 11 | .74 | --- | --- | --- |
| TOTAL | 1194.4 | --- | 1962.88 | 1854 | --- | 2875.10 | 922 | --- | 376.62 |

RIO GRANDE DE LOIZA BASIN

245

50055225 RIO CAGUITAS AT VILLA BLANCA AT CAGUAS, PR--Continued

SEDIMENT DISCHARGE, SUSPENDED (TONS/DAY), WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993

| DAY | MEAN DISCHARGE (CFS) | MEAN CONCEN- TRATION (MG/L) | SEDIMENT DISCHARGE (TONS/DAY) | MEAN DISCHARGE (CFS) | MEAN CONCEN- TRATION (MG/L) | SEDIMENT DISCHARGE (TONS/DAY) | MEAN DISCHARGE (CFS) | MEAN CONCEN- TRATION (MG/L) | SEDIMENT DISCHARGE (TONS/DAY) |
|-------|----------------------------|--------------------------------------|-------------------------------------|----------------------------|--------------------------------------|-------------------------------------|----------------------------|--------------------------------------|-------------------------------------|
| JULY | | | AUGUST | | | SEPTEMBER | | | |
| 1 | 26 | 43 | 3.1 | e29 | 79 | e6.1 | e22 | 75 | e4.4 |
| 2 | 30 | 57 | 5.0 | e27 | 114 | e8.5 | e22 | 39 | e2.3 |
| 3 | 36 | 61 | 6.4 | e27 | 103 | e7.4 | e21 | 38 | e2.2 |
| 4 | 28 | 47 | 3.6 | e26 | 78 | e5.5 | e25 | 42 | e2.8 |
| 5 | 23 | 27 | 1.7 | e25 | 55 | e3.7 | e27 | 44 | e3.2 |
| 6 | 21 | 14 | .76 | e26 | 48 | e3.4 | e42 | 66 | e7.5 |
| 7 | 37 | 52 | 9.4 | e25 | 50 | e3.4 | e26 | 43 | e3.0 |
| 8 | 33 | 88 | 9.2 | e26 | 58 | e4.1 | e24 | 41 | e2.5 |
| 9 | 20 | 38 | 2.0 | e24 | 58 | e3.7 | e24 | 41 | e2.7 |
| 10 | 21 | 38 | 2.4 | e24 | 49 | e3.1 | e26 | 37 | e3.0 |
| 11 | 851 | 856 | 2900 | e25 | 72 | e5.1 | e23 | 20 | e1.3 |
| 12 | 71 | 92 | 22 | e21 | 71 | e4.0 | e22 | 25 | e1.5 |
| 13 | 88 | 171 | 85 | e21 | 90 | e5.1 | e22 | 31 | e1.8 |
| 14 | 51 | 89 | 14 | e23 | 98 | e6.2 | e22 | 41 | e2.4 |
| 15 | 48 | 80 | 13 | e28 | 72 | e7.7 | e25 | 55 | e3.7 |
| 16 | 41 | 74 | 8.7 | e210 | 714 | e534 | e31 | 65 | e5.4 |
| 17 | 31 | 57 | 4.7 | e38 | 63 | e6.6 | e25 | 42 | e2.8 |
| 18 | e28 | 53 | e4.0 | e28 | 47 | e3.6 | e273 | 383 | e834 |
| 19 | e28 | 54 | e4.0 | e27 | 45 | e3.3 | e40 | 98 | e11 |
| 20 | e30 | 56 | e4.5 | e27 | 44 | e3.1 | e48 | 53 | e6.8 |
| 21 | e27 | 58 | e4.3 | e25 | 42 | e2.8 | e27 | 35 | e2.6 |
| 22 | e181 | 353 | e514 | e75 | 205 | e109 | e24 | 21 | e1.3 |
| 23 | e168 | 532 | e380 | e48 | 84 | e12 | e35 | 35 | e3.3 |
| 24 | e130 | 378 | e254 | e29 | 50 | e4.0 | e25 | 42 | e2.8 |
| 25 | e54 | 66 | e11 | e28 | 49 | e4.0 | e24 | 41 | e2.7 |
| 26 | e45 | 80 | e10 | e25 | 52 | e3.8 | e25 | 42 | e2.8 |
| 27 | e38 | 27 | e2.8 | e25 | 42 | e2.8 | e23 | 40 | e2.5 |
| 28 | e34 | 11 | e1.0 | e24 | 43 | e2.8 | e34 | 55 | e5.0 |
| 29 | e32 | 11 | e.90 | e24 | 46 | e3.0 | e42 | 69 | e7.8 |
| 30 | e31 | 11 | e.92 | e24 | 53 | e3.4 | e27 | 45 | e3.3 |
| 31 | e30 | 39 | e3.1 | e23 | 58 | e3.6 | --- | --- | --- |
| TOTAL | 2312 | --- | 4285.48 | 1057 | --- | 778.8 | 1076 | --- | 938.4 |
| YEAR | 14649.6 | | 19072.25 | | | | | | |

e Estimated

RIO GRANDE DE LOIZA BASIN

50055225 RIO CAGUITAS AT VILLA BLANCA AT CAGUAS, PR--Continued

WATER QUALITY DATA, WATER YEAR JULY 1992 TO SEPTEMBER 1993

PARTICLE-SIZE DISTRIBUTION OF SUSPENDED SEDIMENT

| DATE | TIME | DIS- CHARGE, INST. CUBIC FEET PER SECOND | SEDI- MENT, DIS- CHARGE, SUS- PENDED (MG/L) | SEDI- MENT, DIS- CHARGE, SUS- PENDED (T/DAY) | SED. SUSP. FALL DIAM. PERCENT FINER THAN .002 MM | SED. SUSP. FALL DIAM. PERCENT FINER THAN .004 MM | SED. SUSP. FALL DIAM. PERCENT FINER THAN .008 MM |
|----------|------|--|---|--|---|---|---|
| | | | | | | | |
| NOV 1992 | | | | | | | |
| 27... | 1752 | 729 | 2770 | 5450 | 46 | 62 | 76 |
| DEC | | | | | | | |
| 26... | 1527 | 5690 | 1220 | 18700 | 67 | 74 | 82 |
| APR | | | | | | | |
| 15... | 1715 | 4460 | 4620 | 55600 | 48 | 57 | 74 |

| DATE | SED. SUSP. FALL DIAM. PERCENT FINER THAN .016 MM | SED. SUSP. FALL DIAM. PERCENT FINER THAN .031 MM | SED. SUSP. SIEVE DIAM. PERCENT FINER THAN .062 MM | SED. SUSP. SIEVE DIAM. PERCENT FINER THAN .125 MM | SED. SUSP. SIEVE DIAM. PERCENT FINER THAN .250 MM | SED. SUSP. SIEVE DIAM. PERCENT FINER THAN .500 MM | SED. SUSP. SIEVE DIAM. PERCENT FINER THAN 1.00 MM |
|----------|---|---|--|--|--|--|--|
| | | | | | | | |
| NOV 1992 | | | | | | | |
| 27... | 84 | 89 | 99 | 99.2 | 99.6 | 99.8 | 100 |
| DEC | | | | | | | |
| 26... | 85 | 87 | 97 | 98.2 | 98.7 | 99 | 99.5 |
| APR 1993 | | | | | | | |
| 15... | 86 | 90 | 98.7 | 99 | 99.5 | 99.7 | 99.8 |

RIO GRANDE DE LOIZA BASIN

50055225 RIO CAGUITAS AT VILLA BLANCA AT CAGUAS, PR--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993

SILT AND CLAY PERCENT OF SUSPENDED SEDIMENT

| DATE | TIME | STREAM- FLOW, INSTAN- TANEOUS (CFS) | SEDI- MENT, SUS- PENDEDED (MG/L) | SEDI- MENT, DIS- CHARGE, SUS- PENDEDED (T/DAY) | SED. SUSP. SIEVE DIAM. PERCENT FINER THAN .062 MM |
|----------|------|---|--|--|--|
| OCT 1992 | | | | | |
| 06... | 1452 | 908 | 1200 | 2940 | 89 |
| 06... | 2037 | 558 | 1040 | 1570 | 96 |
| NOV | | | | | |
| 25... | 1430 | 19 | 500 | 26 | 81 |
| 27... | 1722 | 559 | 1780 | 2690 | 97 |
| 27... | 2107 | 344 | 1600 | 1490 | 99 |
| DEC | | | | | |
| 26... | 1412 | 2140 | 654 | 3790 | 99 |
| 26... | 1842 | 680 | 556 | 1020 | 99 |
| JAN 1993 | | | | | |
| 07... | 1552 | 291 | 1790 | 1410 | 87 |
| APR | | | | | |
| 29... | 1645 | 538 | 2250 | 3270 | 91 |
| MAY | | | | | |
| 14... | 1500 | 25 | 8290 | 560 | 88 |
| JUN | | | | | |
| 29... | 1525 | 36 | 4790 | 466 | 99 |
| AUG | | | | | |
| 08... | 1640 | 25 | 801 | 54 | 94 |
| 17... | 1600 | 34 | 1320 | 122 | 98 |
| 26... | 1000 | 25 | 7590 | 512 | 12 |

RIO GRANDE DE LOIZA BASIN

50055250 RIO CAGUITAS AT HIGHWAY 30 AT CAGUAS, PR

WATER-QUALITY RECORDS

LOCATION.--Lat 18°15'11", long 66°01'26", at Highway 30 bridge, and 0.8 mi (1.3 km) east of Caguas plaza.

DRAINAGE AREA.--14.1 mi² (36.5 km²).

PERIOD OF RECORD.--Water years 1972 to current year.

WATER-QUALITY DATA, WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993

| DATE | TIME | DIS-CHARGE, INST. CUBIC FEET PER SECOND | SPE-CIFIC CON-DUCT-ANCE (US/CM) | PH WATER WHOLE FIELD (STAND-ARD UNITS) | TEMPER-ATURE WATER (DEG C) | TUR-BID-ITY (NTU) | OXYGEN, DIS-SOLVED (MG/L) | OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION) | OXYGEN DEMAND, CHEM-ICAL (HIGH LEVEL) (MG/L) | COLI-FORM, FECAL, 0.45 UM-MP (COLS./100 ML) | STREP-TOCOCCI, FECAL, (COLS. PER 100 ML) |
|-----------|------|---|---------------------------------|--|----------------------------|-------------------|---------------------------|---|--|---|--|
| OCT 1992 | | | | | | | | | | | |
| 14... | 1145 | 39 | 598 | 7.3 | 29.0 | 5.0 | 3.0 | 38 | 51 | 52000 | 3400 |
| DEC 04... | 1050 | 38 | 500 | 7.0 | 26.1 | 8.2 | 2.8 | 34 | 49 | 220000 | 2700 |
| FEB 1993 | | | | | | | | | | | |
| 10... | 1210 | 26 | 400 | 7.0 | 26.0 | 7.4 | 2.9 | 22 | 59 | 210000 | 29000 |
| APR 12... | 1245 | 28 | 650 | 6.3 | 28.0 | 2.4 | 1.4 | 18 | 50 | 57000 | 20000 |
| MAY 25... | 1300 | 27 | 300 | 7.4 | 28.0 | 4.5 | 3.7 | 48 | 56 | K65000 | K1600 |
| AUG 05... | 0930 | 62 | 555 | 6.8 | 27.5 | 26 | 4.6 | 53 | 55 | 35000 | 20000 |

| DATE | HARD-NESS TOTAL (MG/L AS CaCO3) | HARD-NESS NONCARB WH WAT TOT (MG/L AS CaCO3) | CALCIUM DIS-SOLVED (MG/L AS Ca) | MAGNE-SIUM, DIS-SOLVED (MG/L AS Mg) | SODIUM, DIS-SOLVED (MG/L AS Na) | SODIUM AD-SORP-TION RATIO | POTAS-SIUM, DIS-SOLVED (MG/L AS K) | ALKA-LINITY WAT WH TOT FET FIELD (MG/L AS CaCO3) | SULFIDE TOTAL (MG/L AS S) | SULFATE DIS-SOLVED (MG/L AS SO4) | CHLO-RIDE, DIS-SOLVED (MG/L AS Cl) |
|-----------|---------------------------------|--|---------------------------------|-------------------------------------|---------------------------------|---------------------------|------------------------------------|--|---------------------------|----------------------------------|------------------------------------|
| OCT 1992 | | | | | | | | | | | |
| 14... | 120 | 16 | 39 | 15 | 30 | 2 | 4.3 | 160 | <0.5 | 36 | 30 |
| DEC 04... | -- | -- | -- | -- | -- | -- | -- | 100 | -- | -- | -- |
| FEB 1993 | | | | | | | | | | | |
| 10... | -- | -- | -- | -- | -- | -- | -- | 120 | -- | -- | -- |
| APR 12... | 130 | 4 | 35 | 11 | 32 | 1 | 6.1 | 79 | <0.5 | 39 | 41 |
| MAY 25... | -- | -- | -- | -- | -- | -- | -- | 150 | -- | -- | -- |
| AUG 05... | 150 | 9 | 39 | 13 | 33 | 1 | 4.8 | 100 | -- | 38 | 36 |

| DATE | FLUO-RIDE, DIS-SOLVED (MG/L AS F) | SILICA, DIS-SOLVED (MG/L AS SiO2) | SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L) | SOLIDS, DIS-SOLVED (TONS PER DAY) | RESIDUE TOTAL AT 105 DEG. C, SUS-PENDED (MG/L) | NITRO-GEN, NITRATE (MG/L AS N) | NITRO-GEN, NITRITE (MG/L AS N) | NITRO-GEN, NO2+NO3 TOTAL (MG/L AS N) | NITRO-GEN, AMMONIA TOTAL (MG/L AS N) | NITRO-GEN, ORGANIC TOTAL (MG/L AS N) |
|-----------|-----------------------------------|-----------------------------------|---|-----------------------------------|--|--------------------------------|--------------------------------|--------------------------------------|--------------------------------------|--------------------------------------|
| OCT 1992 | | | | | | | | | | |
| 14... | 0.20 | 28 | 296 | 31.2 | <1 | 0.600 | 0.240 | 0.840 | 7.8 | 4.2 |
| DEC 04... | -- | -- | -- | -- | 12 | 0.490 | 0.210 | 0.700 | 15 | 2.0 |
| FEB 1993 | | | | | | | | | | |
| 10... | -- | -- | -- | -- | 12 | 0.590 | 0.310 | 0.900 | 10 | 3.0 |
| APR 12... | 0.10 | 30 | 242 | 18.2 | 5 | 0.890 | 0.210 | 1.10 | 9.2 | 4.1 |
| MAY 25... | -- | -- | -- | -- | 18 | 0.440 | 0.160 | 0.600 | 5.7 | 3.8 |
| AUG 05... | 0.20 | 31 | 279 | 46.7 | 394 | 0.490 | 0.210 | 0.700 | 15 | 2.0 |

K = non-ideal count

50055250 RIO CAGUITAS AT HIGHWAY 30 AT CAGUAS, PR--Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993

| DATE | NITRO- GEN, AM- MONIA + ORGANIC TOTAL (MG/L AS N) | NITRO- GEN, TOTAL (MG/L AS N) | NITRO- GEN, TOTAL (MG/L AS NO3) | PHOS- PHORUS TOTAL (MG/L AS P) | ARSENIC TOTAL (UG/L AS AS) | BARIUM, TOTAL RECOV- ERABLE (UG/L AS BA) | BORON, TOTAL RECOV- ERABLE (UG/L AS B) | CADMIUM TOTAL RECOV- ERABLE (UG/L AS CD) | CHRO- MIUM, TOTAL RECOV- ERABLE (UG/L AS CR) | COPPER, TOTAL RECOV- ERABLE (UG/L AS CU) |
|-------------------|---|---|---|--|-------------------------------------|---|---|---|--|---|
| OCT 1992 14... | 12 | 13 | 57 | 2.60 | <1 | <100 | 90 | 5 | 4 | 30 |
| DEC 04... | 17 | 18 | 78 | 1.80 | -- | -- | -- | -- | -- | -- |
| FEB 1993 10... | 13 | 14 | 29 | 2.60 | -- | -- | -- | -- | -- | -- |
| APR 12... | 11.3 | 8.8 | 33 | 2.30 | <1 | <100 | 70 | <1 | 1 | 10 |
| MAY 25... | 9.5 | 10 | 46 | 1.70 | -- | -- | -- | -- | -- | -- |
| AUG 05... | 17 | 18 | 82 | 3.80 | -- | -- | -- | -- | -- | -- |

[illegible]

RIO GRANDE DE LOIZA BASIN

50055390 RIO BAIROA AT BAIROA, PR

LOCATION.--Lat 18°15'32", long 66°02'24", Hydrologic Unit 21010005, on left bank, in the Bairoa Housing Area, 1.6 mi (2.6 km) northwest of Plaza de Caguas, 4.1 mi (6.6 km) east of Plaza de Aguas Buenas, and 0.9 mi (1.4 km) northwest of Escuela Pepita Garriga.

DRAINAGE AREA.--5.08 mi² (13.15 km²).

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--November 1990 to current year.

GAGE.--Water-stage recorder and crest-stage gage. Elevation of gage is 131 ft (40 m), from topographic map.

REMARKS.--Records poor. Gage-height and precipitation satellite telemetry at station. Mean daily discharge affected by domestic discharge from nearby station.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993
DAILY MEAN VALUES

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| 1 | 3.4 | 8.1 | e20 | 13 | 5.0 | 3.6 | e3.1 | e12 | e8.9 | 5.8 | 7.0 | 4.6 |
| 2 | 3.4 | 3.7 | e9.0 | 13 | 5.0 | 3.9 | e2.9 | e23 | e8.2 | 7.2 | 6.8 | 4.7 |
| 3 | 3.4 | 4.7 | e7.6 | 12 | 5.7 | 3.4 | e2.7 | e26 | e7.5 | 8.1 | 6.8 | 4.7 |
| 4 | 3.3 | 27 | e7.3 | 12 | 4.7 | 3.4 | e2.8 | e7.1 | e6.4 | 6.2 | 6.6 | 8.7 |
| 5 | 7.2 | 8.0 | e6.5 | 16 | 4.7 | 3.5 | e2.8 | e6.8 | e5.9 | 5.7 | 6.6 | 6.8 |
| 6 | 73 | 5.9 | e6.3 | 13 | 4.8 | 3.5 | e2.7 | e7.9 | e5.6 | 5.4 | 6.5 | 6.4 |
| 7 | 7.9 | 5.7 | e5.4 | 17 | 4.6 | 3.4 | e3.0 | e12 | e5.4 | 14 | 6.4 | 5.0 |
| 8 | 5.4 | e6.0 | e4.9 | e11 | 4.8 | 3.4 | e5.4 | e7.8 | e5.9 | 6.1 | 6.4 | 4.7 |
| 9 | 4.0 | e13 | e4.6 | e7.2 | 4.7 | 3.4 | e7.4 | e6.8 | e7.0 | 4.8 | 6.1 | 6.1 |
| 10 | 16 | e30 | e4.5 | e7.0 | 4.7 | 3.4 | e6.0 | e19 | 8.7 | 5.0 | 6.0 | 5.4 |
| 11 | 5.1 | e8.0 | e4.6 | e7.2 | 4.5 | 3.5 | e6.2 | e9.0 | 7.0 | 80 | 6.1 | 4.6 |
| 12 | 3.5 | e6.4 | e4.5 | e6.6 | 4.8 | 3.5 | e8.0 | e6.6 | 6.9 | 17 | 6.3 | 4.5 |
| 13 | 3.4 | e6.2 | e6.2 | 6.4 | 4.8 | 3.3 | e13 | e6.2 | 6.8 | 11 | 6.2 | 4.9 |
| 14 | 3.6 | e6.4 | e11 | 6.2 | 4.5 | 3.1 | e20 | e51 | 10 | 9.6 | 6.6 | 4.7 |
| 15 | 3.4 | e6.0 | e5.0 | 6.1 | 4.6 | 3.5 | e12 | e14 | 11 | 14 | 6.9 | 5.4 |
| 16 | e3.5 | e15 | e5.4 | 6.0 | 7.8 | 4.8 | e8.0 | e10 | 8.1 | 10 | 24 | 6.8 |
| 17 | e9.0 | e29 | e5.8 | 5.9 | 4.3 | 4.0 | e6.8 | e8.0 | 7.0 | 8.3 | 7.4 | 5.1 |
| 18 | e19 | e35 | e5.2 | 5.7 | 3.8 | 3.5 | e5.6 | e6.0 | 7.1 | 7.9 | 6.3 | 112 |
| 19 | e9.0 | e11 | e5.2 | 5.7 | 3.7 | 3.3 | e6.7 | 5.7 | 27 | 7.7 | 6.1 | 35 |
| 20 | e6.0 | e8.4 | e4.4 | 5.9 | 4.1 | 3.3 | e6.0 | 5.7 | 20 | 7.2 | 5.7 | 20 |
| 21 | e4.5 | e9.0 | e9.0 | 6.0 | 4.6 | 2.9 | e6.5 | 5.5 | 9.4 | 7.2 | 5.3 | e6.8 |
| 22 | e6.4 | e11 | 9.0 | 8.3 | 3.6 | 3.0 | e5.0 | 5.4 | 9.3 | 14 | 22 | e4.3 |
| 23 | e4.0 | e10 | 5.0 | 7.0 | 3.5 | e4.0 | e6.0 | 18 | 7.8 | 23 | 8.8 | e6.2 |
| 24 | e6.8 | e8.6 | 6.2 | 5.0 | 3.7 | e4.2 | e4.9 | 7.4 | 7.1 | 24 | 6.2 | e5.5 |
| 25 | 4.2 | e7.2 | 5.9 | 5.9 | 3.6 | e3.7 | e5.2 | 7.9 | 6.9 | 11 | 5.7 | e5.7 |
| 26 | 3.5 | e15 | e337 | 5.4 | 4.5 | e3.6 | e6.8 | 36 | 7.0 | 9.4 | 5.6 | e5.1 |
| 27 | 3.5 | e80 | e23 | 5.2 | 3.6 | e3.3 | e9.0 | 18 | 6.7 | 8.4 | 5.3 | e3.9 |
| 28 | 3.6 | e150 | e15 | 5.2 | 3.2 | e3.2 | e8.4 | e11 | 10 | 7.8 | 5.2 | e7.2 |
| 29 | 3.5 | e20 | e31 | 6.1 | --- | e3.2 | e10 | e10 | 7.3 | 7.5 | 4.9 | e8.0 |
| 30 | 3.2 | e113 | e19 | 5.2 | --- | e3.2 | e23 | e9.0 | 7.4 | 7.1 | 4.9 | e6.4 |
| 31 | 3.7 | --- | e17 | 5.2 | --- | e3.2 | --- | e9.7 | --- | 7.1 | 4.7 | --- |
| TOTAL | 239.4 | 667.3 | 610.5 | 247.4 | 125.9 | 108.2 | 215.9 | 388.5 | 259.3 | 367.5 | 225.4 | 319.2 |
| MEAN | 7.72 | 22.2 | 19.7 | 7.98 | 4.50 | 3.49 | 7.20 | 12.5 | 8.64 | 11.9 | 7.27 | 10.6 |
| MAX | 73 | 150 | 337 | 17 | 7.8 | 4.8 | 23 | 51 | 27 | 80 | 24 | 112 |
| MIN | 3.2 | 3.7 | 4.4 | 5.0 | 3.2 | 2.9 | 2.7 | 5.4 | 5.4 | 4.8 | 4.7 | 3.9 |
| MED | 4.0 | 8.8 | 6.2 | 6.2 | 4.6 | 3.4 | 6.1 | 9.0 | 7.2 | 7.9 | 6.3 | 5.4 |
| AC-FT | 475 | 1320 | 1210 | 491 | 250 | 215 | 428 | 771 | 514 | 729 | 447 | 633 |
| CFSM | 1.52 | 4.38 | 3.88 | 1.57 | .89 | .69 | 1.42 | 2.47 | 1.70 | 2.33 | 1.43 | 2.09 |
| IN. | 1.75 | 4.89 | 4.47 | 1.81 | .92 | .79 | 1.58 | 2.84 | 1.90 | 2.69 | 1.65 | 2.34 |

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1991 - 1993, BY WATER YEAR (WY)

| | 1991 | 1992 | 1993 | 1991 | 1992 | 1993 | 1991 | 1992 | 1993 | 1991 | 1992 | 1993 |
|------|------|------|------|------|------|------|------|------|------|------|------|------|
| MEAN | 12.5 | 13.0 | 11.5 | 9.84 | 5.50 | 4.13 | 4.52 | 8.24 | 5.94 | 10.9 | 6.33 | 8.32 |
| MAX | 25.3 | 22.2 | 19.7 | 13.6 | 8.60 | 5.18 | 7.20 | 12.5 | 8.64 | 16.5 | 7.64 | 10.6 |
| (WY) | 1991 | 1993 | 1992 | 1992 | 1991 | 1991 | 1993 | 1993 | 1991 | 1991 | 1992 | 1993 |
| MIN | 4.30 | 7.48 | 4.63 | 7.91 | 3.47 | 3.49 | 2.61 | 5.96 | 4.37 | 4.40 | 4.09 | 4.50 |
| (WY) | 1992 | 1991 | 1992 | 1991 | 1992 | 1993 | 1992 | 1991 | 1991 | 1992 | 1991 | 1991 |

SUMMARY STATISTICS

FOR 1992 CALENDAR YEAR

FOR 1993 WATER YEAR

WATER YEARS 1991 - 1993

| | | | |
|--------------------------|--------|--------|-------|
| ANNUAL TOTAL | 3238.4 | 3774.5 | |
| ANNUAL MEAN | 8.85 | 10.3 | |
| HIGHEST ANNUAL MEAN | | | 8.42 |
| LOWEST ANNUAL MEAN | | | 10.3 |
| HIGHEST DAILY MEAN | 337 | Dec 26 | 337 |
| LOWEST DAILY MEAN | 2.1 | Apr 29 | 2.1 |
| ANNUAL SEVEN-DAY MINIMUM | 2.2 | Apr 24 | 2.2 |
| INSTANTANEOUS PEAK FLOW | | | 1510 |
| INSTANTANEOUS PEAK STAGE | | | 12.22 |
| ANNUAL RUNOFF (AC-FT) | 6420 | 7490 | 6100 |
| ANNUAL RUNOFF (CFSM) | 1.74 | 2.04 | 1.66 |
| ANNUAL RUNOFF (INCHES) | 23.71 | 27.64 | 22.52 |
| 10 PERCENT EXCEEDS | 11 | 17 | 13 |
| 50 PERCENT EXCEEDS | 3.8 | 6.2 | 4.7 |
| 90 PERCENT EXCEEDS | 2.5 | 3.5 | 3.0 |

e Estimated

RIO GRANDE DE LOIZA BASIN

50055390 RIO BAIROA AT BAIROA, PR--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORDS.-- Water years 1991 to current year.

PERIOD OF DAILY RECORD.--

SUSPENDED-SEDIMENT DISCHARGE: November 1990 to September 1993.

INSTRUMENTATION.-- DH-48 and automatic sediment sampler.

EXTREMES FOR PERIOD OF DAILY RECORD.--

SEDIMENT CONCENTRATION: Maximum daily mean, 4,310 mg/L Dec. 26, 1992; Minimum daily mean, 2 mg/L Several days.

SEDIMENT LOADS: Maximum daily mean, 3,910 tons (3,550 tonnes) Dec. 26, 1992; Minimum daily mean, 0.02 ton (0.02 tonne) Several days.

EXTREMES FOR WATER YEARS 1991-93.--

| Water Year | Suspended-sediment concentration (mg/L) | | Suspended-sediment discharge (tons per day) | |
|------------|---|------------------|---|---------------------|
| | maximum | minimum | maximum | minimum |
| 1991 | 1,140 (Jul. 16) | 7 (Several days) | 1,350 (Jul. 16) | .06 (Several days) |
| 1992 | 890 (Jan. 05) | 2 (Several days) | 433 (Jan. 05) | .02 (Several days) |
| 1993 | 4,300 (Dec. 26) | 2 (Several days) | 3,910 (Dec. 26) | .02 (Apr. 03, 1994) |

SEDIMENT DISCHARGE, SUSPENDED (TONS/DAY), WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991

| DAY | MEAN DISCHARGE (CFS) | MEAN CONCENTRATION (MG/L) | SEDIMENT DISCHARGE (TONS/DAY) | MEAN DISCHARGE (CFS) | MEAN CONCENTRATION (MG/L) | SEDIMENT DISCHARGE (TONS/DAY) | MEAN DISCHARGE (CFS) | MEAN CONCENTRATION (MG/L) | SEDIMENT DISCHARGE (TONS/DAY) |
|-------|----------------------|---------------------------|-------------------------------|----------------------|---------------------------|-------------------------------|----------------------|---------------------------|-------------------------------|
| | OCTOBER | | | NOVEMBER | | | DECEMBER | | |
| 1 | e4.7 | --- | --- | e9.0 | --- | --- | 12 | 75 | 6.4 |
| 2 | e4.1 | --- | --- | e8.6 | --- | --- | 12 | 82 | 9.7 |
| 3 | e4.7 | --- | --- | e8.2 | --- | --- | 51 | 263 | 72 |
| 4 | e5.0 | --- | --- | e8.0 | --- | --- | 9.6 | 31 | 1.0 |
| 5 | e4.5 | --- | --- | e7.6 | --- | --- | 5.9 | 8 | .13 |
| 6 | e4.5 | --- | --- | e7.2 | --- | --- | 5.1 | 7 | .10 |
| 7 | e14 | --- | --- | e7.2 | --- | --- | 4.9 | 7 | .10 |
| 8 | e5.2 | --- | --- | e7.0 | --- | --- | 4.6 | 7 | .10 |
| 9 | e4.4 | --- | --- | e6.8 | --- | --- | 4.5 | 8 | .10 |
| 10 | e14 | --- | --- | e6.6 | --- | --- | 4.4 | 10 | .12 |
| 11 | e7.2 | --- | --- | e6.4 | --- | --- | 4.6 | 12 | .15 |
| 12 | e5.4 | --- | --- | e6.2 | --- | --- | 4.8 | 14 | .18 |
| 13 | e7.0 | --- | --- | e6.2 | --- | --- | 5.0 | 15 | .20 |
| 14 | e8.4 | --- | --- | e6.0 | --- | --- | 20 | 169 | 57 |
| 15 | e120 | --- | --- | e6.0 | --- | --- | 14 | 172 | 36 |
| 16 | e30 | --- | --- | e22 | --- | --- | 5.0 | 15 | .20 |
| 17 | e16 | --- | --- | 6.4 | --- | --- | 4.6 | 8 | .11 |
| 18 | e94 | --- | --- | 5.7 | --- | --- | 4.8 | 10 | .13 |
| 19 | e40 | --- | --- | 5.8 | 23 | .36 | 4.4 | 13 | .15 |
| 20 | e45 | --- | --- | 6.0 | 26 | .57 | 4.4 | 15 | .17 |
| 21 | e130 | --- | --- | 11 | 54 | 5.4 | 4.4 | 16 | .19 |
| 22 | e22 | --- | --- | 7.3 | 29 | .57 | 5.0 | 18 | .24 |
| 23 | e14 | --- | --- | 5.8 | 27 | .48 | 4.6 | 20 | .23 |
| 24 | e23 | --- | --- | 6.0 | 24 | .37 | 5.1 | 21 | .28 |
| 25 | e36 | --- | --- | 5.5 | 23 | .35 | 4.9 | 22 | .30 |
| 26 | e54 | --- | --- | 6.1 | 24 | .40 | 4.9 | 22 | .30 |
| 27 | e22 | --- | --- | 8.9 | 36 | .93 | 5.0 | 22 | .30 |
| 28 | e15 | --- | --- | 5.9 | 24 | .41 | 5.7 | 24 | .58 |
| 29 | e12 | --- | --- | 6.4 | 26 | .55 | 22 | 132 | 31 |
| 30 | e10 | --- | --- | 8.7 | 44 | 1.9 | 15 | 72 | 5.4 |
| 31 | e9.4 | --- | --- | --- | --- | --- | 57 | 298 | 83 |
| TOTAL | 785.5 | --- | --- | 224.5 | --- | --- | 319.2 | --- | 305.86 |

e Estimated

RIO GRANDE DE LOIZA BASIN

50055390 RIO BAIROA AT BAIROA, PR--Continued

SEDIMENT DISCHARGE, SUSPENDED (TONS/DAY), WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991

| DAY | MEAN DISCHARGE (CFS) | MEAN CONCEN- TRATION (MG/L) | SEDIMENT DISCHARGE (TONS/DAY) | MEAN DISCHARGE (CFS) | MEAN CONCEN- TRATION (MG/L) | SEDIMENT DISCHARGE (TONS/DAY) | MEAN DISCHARGE (CFS) | MEAN CONCEN- TRATION (MG/L) | SEDIMENT DISCHARGE (TONS/DAY) |
|---------|----------------------------|--------------------------------------|-------------------------------------|----------------------------|--------------------------------------|-------------------------------------|----------------------------|--------------------------------------|-------------------------------------|
| JANUARY | | | FEBRUARY | | | MARCH | | | |
| 1 | 35 | 200 | 63 | 5.6 | 11 | .18 | 4.4 | 10 | .12 |
| 2 | 7.4 | 29 | .66 | 5.7 | 11 | .16 | 4.2 | 10 | .12 |
| 3 | 6.0 | 14 | .23 | 5.2 | 10 | .14 | 4.4 | 10 | .13 |
| 4 | 5.1 | 10 | .15 | 5.0 | 10 | .14 | 4.7 | 16 | .23 |
| 5 | 7.9 | 28 | 1.1 | 94 | 551 | 513 | 5.2 | 16 | .30 |
| 6 | 10 | 82 | 3.7 | 11 | 45 | 1.7 | 5.8 | 21 | .35 |
| 7 | 6.5 | 67 | 1.2 | 6.2 | 27 | .50 | 4.6 | 18 | .23 |
| 8 | 6.0 | 20 | .27 | 5.2 | 20 | .27 | 5.0 | 18 | .24 |
| 9 | 17 | 87 | 8.0 | 4.8 | 18 | .24 | 4.6 | 18 | .21 |
| 10 | 21 | 134 | 24 | 4.7 | 20 | .25 | 4.8 | 17 | .21 |
| 11 | 8.1 | 35 | .81 | 6.6 | 40 | 1.4 | 4.4 | 15 | .19 |
| 12 | 7.9 | 35 | .93 | 6.2 | 24 | .51 | 4.2 | 14 | .16 |
| 13 | 6.1 | 26 | .44 | 5.5 | 27 | .42 | 4.1 | 13 | .14 |
| 14 | 5.8 | 15 | .24 | 4.7 | 19 | .24 | 4.3 | 13 | .14 |
| 15 | 6.1 | 13 | .21 | 4.8 | 11 | .14 | 4.2 | 12 | .13 |
| 16 | 5.9 | 13 | .20 | 5.5 | 14 | .56 | 4.2 | 11 | .11 |
| 17 | 5.6 | 13 | .19 | 4.5 | 15 | .19 | 4.1 | 9 | .09 |
| 18 | 5.7 | 13 | .20 | 6.8 | 27 | 1.3 | 4.4 | 8 | .09 |
| 19 | 5.7 | 13 | .20 | 6.7 | 21 | .43 | 4.1 | 6 | .07 |
| 20 | 5.7 | 13 | .20 | 5.0 | 15 | .20 | 3.8 | 5 | .06 |
| 21 | 5.7 | 13 | .19 | 5.2 | 10 | .15 | 3.8 | 5 | .06 |
| 22 | 5.8 | 12 | .18 | 4.7 | 5 | .07 | 25 | 113 | 15 |
| 23 | 5.9 | 12 | .19 | 4.8 | 5 | .07 | 4.8 | 16 | .21 |
| 24 | 5.9 | 12 | .19 | 4.6 | 6 | .08 | 4.2 | 21 | .24 |
| 25 | 5.6 | 12 | .18 | 4.8 | 8 | .10 | 4.1 | 16 | .17 |
| 26 | 5.4 | 12 | .18 | 4.3 | 9 | .10 | 9.2 | 55 | 4.1 |
| 27 | 5.3 | 11 | .16 | 4.4 | 8 | .10 | 4.8 | 20 | .29 |
| 28 | 5.1 | 10 | .14 | 4.4 | 8 | .10 | 4.0 | 15 | .15 |
| 29 | 5.0 | 10 | .14 | --- | --- | --- | 3.9 | 14 | .14 |
| 30 | 4.9 | 11 | .14 | --- | --- | --- | 3.7 | 13 | .13 |
| 31 | 6.0 | 11 | .18 | --- | --- | --- | 3.5 | 11 | .11 |
| TOTAL | 245.1 | --- | 107.80 | 240.9 | --- | 522.74 | 160.5 | --- | 23.92 |

RIO GRANDE DE LOIZA BASIN

50055390 RIO BAIROA AT BAIROA, PR--Continued

SEDIMENT DISCHARGE, SUSPENDED (TONS/DAY), WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991

| DAY | MEAN DISCHARGE (CFS) | MEAN CONCEN- TRATION (MG/L) | SEDIMENT DISCHARGE (TONS/DAY) | MEAN DISCHARGE (CFS) | MEAN CONCEN- TRATION (MG/L) | SEDIMENT DISCHARGE (TONS/DAY) | MEAN DISCHARGE (CFS) | MEAN CONCEN- TRATION (MG/L) | SEDIMENT DISCHARGE (TONS/DAY) |
|-------|----------------------------|--------------------------------------|-------------------------------------|----------------------------|--------------------------------------|-------------------------------------|----------------------------|--------------------------------------|-------------------------------------|
| APRIL | | | MAY | | | JUNE | | | |
| 1 | 3.7 | 10 | .10 | 3.6 | 17 | .16 | 3.1 | 10 | .08 |
| 2 | 3.6 | 10 | .09 | 3.4 | 16 | .15 | 3.0 | 9 | .07 |
| 3 | 3.6 | 8 | .08 | 3.4 | 17 | .16 | 2.9 | 8 | .06 |
| 4 | 3.5 | 8 | .08 | 3.5 | 18 | .16 | 3.0 | 7 | .06 |
| 5 | 3.5 | 7 | .07 | 3.7 | 22 | .22 | 3.6 | 14 | .17 |
| 6 | 3.5 | 7 | .06 | 3.7 | 15 | .14 | 4.0 | 18 | .22 |
| 7 | 3.5 | 6 | .06 | 6.2 | 60 | 1.4 | 4.1 | 17 | .39 |
| 8 | 7.2 | 27 | 1.4 | 11 | 48 | 4.2 | 3.3 | 12 | .10 |
| 9 | 4.1 | 16 | .19 | 5.2 | 21 | .36 | 3.1 | 11 | .09 |
| 10 | 3.4 | 13 | .12 | 4.9 | 19 | .38 | 3.0 | 9 | .07 |
| 11 | 3.5 | 14 | .13 | 4.6 | 20 | .28 | 3.2 | 9 | .08 |
| 12 | 6.4 | 25 | 1.0 | 4.0 | 31 | .36 | 3.7 | 15 | .17 |
| 13 | 5.2 | 20 | .30 | 3.4 | 27 | .25 | 2.9 | 11 | .08 |
| 14 | 3.6 | 14 | .13 | 3.3 | 23 | .20 | 2.8 | 11 | .08 |
| 15 | 3.8 | 16 | .18 | 3.2 | 21 | .18 | 2.7 | 11 | .08 |
| 16 | 3.5 | 13 | .12 | 3.2 | 19 | .16 | 2.6 | 11 | .08 |
| 17 | 3.4 | 14 | .12 | 3.1 | 15 | .12 | 2.6 | 11 | .08 |
| 18 | 3.4 | 14 | .12 | 9.4 | 42 | 1.9 | 2.8 | 11 | .08 |
| 19 | 3.3 | 13 | .11 | 55 | 307 | 137 | 3.0 | 11 | .08 |
| 20 | 3.3 | 12 | .10 | 7.3 | 144 | 3.5 | 2.9 | 11 | .09 |
| 21 | 3.3 | 12 | .10 | 3.8 | 66 | .70 | 3.3 | 11 | .10 |
| 22 | 3.2 | 12 | .10 | 4.0 | 40 | .45 | 3.1 | 11 | .09 |
| 23 | 3.3 | 12 | .10 | 3.0 | 31 | .25 | 6.9 | 30 | 1.1 |
| 24 | 3.4 | 11 | .10 | 3.0 | 27 | .21 | 3.9 | 15 | .17 |
| 25 | 3.3 | 11 | .09 | 7.6 | 35 | 1.9 | 3.5 | 13 | .12 |
| 26 | 3.2 | 10 | .08 | 3.3 | 14 | .13 | 3.7 | 12 | .12 |
| 27 | 3.1 | 10 | .08 | 3.1 | 14 | .11 | 3.4 | 13 | .11 |
| 28 | 3.1 | 8 | .07 | 3.0 | 13 | .11 | 3.6 | 13 | .12 |
| 29 | 3.1 | 7 | .06 | 3.0 | 11 | .09 | 3.5 | 13 | .12 |
| 30 | 4.7 | 18 | .89 | 3.0 | 10 | .08 | 34 | 912 | 353 |
| 31 | --- | --- | --- | 3.0 | 10 | .08 | --- | --- | --- |
| TOTAL | 112.7 | --- | 6.23 | 184.9 | --- | 155.39 | 131.2 | --- | 357.26 |

RIO GRANDE DE LOIZA BASIN

50055390 RIO BAIROA AT BAIROA, PR--Continued

SEDIMENT DISCHARGE, SUSPENDED (TONS/DAY), WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991

| DAY | MEAN DISCHARGE (CFS) | MEAN CONCEN- TRATION (MG/L) | SEDIMENT DISCHARGE (TONS/DAY) | MEAN DISCHARGE (CFS) | MEAN CONCEN- TRATION (MG/L) | SEDIMENT DISCHARGE (TONS/DAY) | MEAN DISCHARGE (CFS) | MEAN CONCEN- TRATION (MG/L) | SEDIMENT DISCHARGE (TONS/DAY) |
|-------|----------------------------|--------------------------------------|-------------------------------------|----------------------------|--------------------------------------|-------------------------------------|----------------------------|--------------------------------------|-------------------------------------|
| JULY | | | AUGUST | | | SEPTEMBER | | | |
| 1 | 40 | 185 | 36 | e4.2 | 28 | e.32 | e3.7 | 15 | e.13 |
| 2 | 6.9 | 27 | .54 | e3.5 | 16 | e.15 | e3.8 | 15 | e.14 |
| 3 | 5.6 | 21 | .35 | e3.2 | 15 | e.12 | e3.8 | 14 | e.14 |
| 4 | 5.0 | 20 | .26 | e3.3 | 15 | e.13 | e3.7 | 13 | e.13 |
| 5 | 4.5 | 18 | .22 | e3.5 | 14 | e.14 | e3.6 | 13 | e.12 |
| 6 | 4.3 | 16 | .18 | e3.3 | 14 | e.12 | e3.4 | 12 | e.12 |
| 7 | 28 | 235 | 87 | e3.3 | 14 | e.12 | e3.5 | 12 | e.12 |
| 8 | 8.0 | 176 | 3.9 | e3.1 | 13 | e.10 | e3.7 | 12 | e.12 |
| 9 | 4.8 | 162 | 2.1 | e3.3 | 13 | e.11 | e3.9 | 12 | e.12 |
| 10 | 4.0 | 144 | 1.6 | e3.1 | 12 | e.10 | e3.8 | 11 | e.11 |
| 11 | 4.0 | 117 | 1.2 | e3.0 | 11 | e.08 | e3.8 | 10 | e.10 |
| 12 | 3.9 | 88 | .93 | e2.9 | 11 | e.08 | e3.7 | 10 | e.09 |
| 13 | 4.0 | 58 | .61 | e2.8 | 10 | e.07 | e3.7 | 8 | e.08 |
| 14 | 3.6 | 28 | .27 | e2.9 | 8 | e.07 | e3.7 | 7 | e.07 |
| 15 | 17 | 106 | 22 | e2.8 | 8 | e.06 | e3.6 | 6 | e.06 |
| 16 | 191 | 1140 | 1350 | e3.1 | 10 | e.08 | e3.5 | 5 | e.05 |
| 17 | 9.8 | 51 | 1.5 | e3.2 | 10 | e.08 | e15 | 565 | e80 |
| 18 | 79 | 513 | 443 | e3.3 | 10 | e.08 | e4.8 | 232 | e3.0 |
| 19 | 14 | 60 | 2.8 | e3.2 | 10 | e.08 | e5.0 | 97 | e10 |
| 20 | 7.2 | 31 | .61 | e3.1 | 10 | e.08 | e4.0 | 9 | e.10 |
| 21 | 5.9 | 25 | .40 | e3.1 | 10 | e.08 | e3.9 | 13 | e.20 |
| 22 | 20 | 85 | 13 | e7.4 | 69 | e20 | e6.0 | 78 | e21 |
| 23 | e5.6 | 32 | e.56 | e5.2 | 21 | e.32 | e4.6 | 57 | e4.5 |
| 24 | e5.2 | 31 | e.42 | e4.3 | 15 | e.17 | e4.2 | 47 | e.54 |
| 25 | e4.8 | 28 | e.35 | e4.0 | 11 | e.11 | e3.8 | 43 | e.47 |
| 26 | e4.5 | 24 | e.28 | e3.8 | 8 | e.09 | e3.7 | 37 | e.38 |
| 27 | e4.3 | 21 | e.24 | e16 | 145 | e34 | e4.6 | 27 | e.29 |
| 28 | e7.0 | 67 | e3.2 | e6.4 | 36 | e1.2 | e4.4 | 20 | e.24 |
| 29 | e3.7 | 81 | e1.0 | e4.5 | 38 | e.48 | e6.4 | 31 | e1.4 |
| 30 | e3.5 | 28 | e.26 | e4.1 | 38 | e.41 | e5.8 | 19 | e.27 |
| 31 | e3.8 | 29 | e.30 | e3.9 | 15 | e.14 | --- | --- | --- |
| TOTAL | 512.9 | --- | 1975.08 | 126.8 | --- | 59.17 | 135.1 | --- | 124.09 |

e Estimated

RIO GRANDE DE LOIZA BASIN

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50055390 RIO BAIROA AT BAIROA, PR--Continued

SEDIMENT DISCHARGE, SUSPENDED (TONS/DAY), WATER YEAR OCTOBER 1991 TO SEPTEMBER 1992

| DAY | MEAN DISCHARGE (CFS) | MEAN CONCEN- TRATION (MG/L) | SEDIMENT DISCHARGE (TONS/DAY) | MEAN DISCHARGE (CFS) | MEAN CONCEN- TRATION (MG/L) | SEDIMENT DISCHARGE (TONS/DAY) | MEAN DISCHARGE (CFS) | MEAN CONCEN- TRATION (MG/L) | SEDIMENT DISCHARGE (TONS/DAY) |
|---------|----------------------------|--------------------------------------|-------------------------------------|----------------------------|--------------------------------------|-------------------------------------|----------------------------|--------------------------------------|-------------------------------------|
| OCTOBER | | | NOVEMBER | | | DECEMBER | | | |
| 1 | e4.0 | 13 | e.14 | 17 | 72 | 18 | 3.9 | 5 | .06 |
| 2 | e7.0 | 24 | e.46 | 11 | 64 | 4.0 | 3.9 | 5 | .06 |
| 3 | 3.9 | 23 | .24 | 4.7 | 30 | .39 | e5.6 | 5 | e.08 |
| 4 | 3.2 | 103 | .91 | 4.8 | 25 | .30 | e6.4 | 6 | e.10 |
| 5 | 4.0 | 18 | .20 | 8.9 | 36 | 1.3 | 4.6 | 8 | .11 |
| 6 | 3.2 | 16 | .14 | 5.8 | 21 | .33 | 4.3 | 13 | .15 |
| 7 | 3.2 | 14 | .11 | 18 | 78 | 7.7 | 3.9 | 14 | .16 |
| 8 | 3.2 | 12 | .10 | 57 | 268 | 67 | 3.8 | 13 | .13 |
| 9 | 3.3 | 12 | .10 | 21 | 89 | 8.4 | 3.9 | 11 | .11 |
| 10 | 3.2 | 12 | .10 | 6.7 | 29 | .57 | 3.9 | 10 | .10 |
| 11 | 3.1 | 11 | .09 | e5.3 | 18 | e.25 | 3.9 | 8 | .09 |
| 12 | 3.1 | 10 | .08 | e4.8 | 15 | e.20 | 3.9 | 7 | .08 |
| 13 | 3.0 | 10 | .08 | e4.6 | 15 | e.18 | e4.9 | 12 | e.40 |
| 14 | 3.3 | 9 | .09 | e4.4 | 15 | e.18 | e5.2 | 15 | e.21 |
| 15 | 3.8 | 8 | .09 | e4.2 | 15 | e.18 | 4.0 | 10 | .10 |
| 16 | 3.4 | 8 | .08 | e4.0 | 15 | e.16 | 3.8 | 10 | .10 |
| 17 | 3.3 | 9 | .08 | 3.8 | 15 | .16 | 3.7 | 10 | .10 |
| 18 | 3.0 | 10 | .09 | 3.8 | 15 | .16 | 3.6 | 10 | .09 |
| 19 | 3.0 | 10 | .09 | 3.8 | 15 | .16 | 3.6 | 8 | .08 |
| 20 | 2.9 | 10 | .08 | 3.9 | 14 | .14 | e15 | 60 | e8.6 |
| 21 | 3.7 | 14 | .18 | 9.2 | 37 | 3.3 | e9.2 | 33 | e1.5 |
| 22 | 5.0 | 17 | .46 | 16 | 57 | 2.9 | 4.1 | 12 | .14 |
| 23 | 4.6 | 16 | .22 | 12 | 45 | 3.0 | 4.0 | 13 | .13 |
| 24 | 3.3 | 10 | .09 | 8.8 | 64 | 1.9 | 3.8 | 14 | .14 |
| 25 | 3.0 | 9 | .08 | 6.3 | 25 | .43 | 3.8 | 15 | .15 |
| 26 | 3.0 | 9 | .08 | 6.1 | 20 | .33 | 3.7 | 15 | .15 |
| 27 | 2.9 | 9 | .07 | 10 | 42 | 4.0 | 3.8 | 15 | .15 |
| 28 | 2.7 | 8 | .06 | 4.3 | 20 | .24 | 3.8 | 15 | .16 |
| 29 | 5.1 | 19 | 1.4 | 4.1 | 14 | .15 | 3.8 | 15 | .16 |
| 30 | 24 | 106 | 27 | 4.0 | 7 | .09 | 3.8 | 15 | .16 |
| 31 | 5.9 | 22 | .42 | --- | --- | --- | 3.8 | 16 | .16 |
| TOTAL | 133.3 | --- | 33.41 | 278.3 | --- | 126.10 | 143.4 | --- | 13.91 |

e Estimated

RIO GRANDE DE LOIZA BASIN

50055390 RIO BAIROA AT BAIROA, PR--Continued

SEDIMENT DISCHARGE, SUSPENDED (TONS/DAY), WATER YEAR OCTOBER 1991 TO SEPTEMBER 1992

| DAY | MEAN DISCHARGE (CFS) | MEAN CONCENTRATION (MG/L) | SEDIMENT DISCHARGE (TONS/DAY) | MEAN DISCHARGE (CFS) | MEAN CONCENTRATION (MG/L) | SEDIMENT DISCHARGE (TONS/DAY) | MEAN DISCHARGE (CFS) | MEAN CONCENTRATION (MG/L) | SEDIMENT DISCHARGE (TONS/DAY) |
|---------|----------------------------|---------------------------------|-------------------------------------|----------------------------|---------------------------------|-------------------------------------|----------------------------|---------------------------------|-------------------------------------|
| JANUARY | | | FEBRUARY | | | MARCH | | | |
| 1 | e3.8 | 16 | e.16 | e3.3 | 24 | e.21 | 3.0 | 5 | .04 |
| 2 | e3.6 | 16 | e.16 | e3.4 | 23 | e.22 | 2.8 | 4 | .04 |
| 3 | e3.6 | 16 | e.16 | e3.5 | 22 | e.20 | 2.8 | 7 | .06 |
| 4 | e3.6 | 16 | e.16 | e3.5 | 18 | e.16 | 2.8 | 7 | .06 |
| 5 | e180 | 890 | e433 | e3.5 | 14 | e.13 | 2.8 | 7 | .06 |
| 6 | e100 | 458 | e124 | e3.5 | 12 | e.12 | 2.8 | 7 | .06 |
| 7 | e10 | 49 | e1.3 | e3.4 | 15 | e.14 | 2.8 | 8 | .06 |
| 8 | e6.0 | 48 | e.77 | e3.5 | 21 | e.20 | e2.6 | 8 | e.06 |
| 9 | e5.4 | 49 | e.75 | e3.6 | 27 | e.27 | e2.6 | 8 | e.06 |
| 10 | 5.8 | 49 | .77 | e4.3 | 27 | e.30 | e2.7 | 7 | e.06 |
| 11 | 4.1 | 50 | .55 | e3.6 | 22 | e.21 | e2.6 | 5 | e.04 |
| 12 | 3.8 | 53 | .54 | e3.4 | 24 | e.22 | e2.5 | 4 | e.03 |
| 13 | 4.1 | 55 | .60 | e3.4 | 29 | e.27 | e2.5 | 4 | e.02 |
| 14 | 3.5 | 51 | .49 | e3.4 | 31 | e.29 | e2.4 | 4 | e.02 |
| 15 | 3.2 | 45 | .37 | e3.3 | 25 | e.22 | e2.7 | 4 | e.03 |
| 16 | 22 | 122 | 32 | e3.5 | 16 | e.15 | e2.6 | 4 | e.02 |
| 17 | 8.2 | 39 | 2.3 | e3.4 | 12 | e.12 | e5.2 | 4 | e.06 |
| 18 | e4.4 | 24 | e.25 | e3.4 | 16 | e.15 | e2.8 | 4 | e.04 |
| 19 | e3.9 | 26 | e.27 | e3.4 | 24 | e.22 | e2.7 | 4 | e.02 |
| 20 | e3.8 | 25 | e.25 | e3.2 | 31 | e.27 | e2.6 | 12 | e.08 |
| 21 | e3.8 | 22 | e.22 | e3.3 | 36 | e.31 | e2.5 | 14 | e.10 |
| 22 | e3.7 | 18 | e.18 | e3.2 | 39 | e.34 | e2.5 | 19 | e.13 |
| 23 | e3.7 | 16 | e.15 | 3.7 | 43 | .42 | e2.4 | 23 | e.14 |
| 24 | e3.7 | 17 | e.16 | 4.0 | 32 | .34 | e2.3 | 17 | e.10 |
| 25 | e3.8 | 19 | e.19 | 3.3 | 14 | .12 | e2.3 | 6 | e.04 |
| 26 | e3.7 | 20 | e.17 | 3.2 | 6 | .06 | e2.3 | 3 | e.02 |
| 27 | e3.6 | 20 | e.19 | 3.6 | 4 | .04 | e2.3 | 3 | e.02 |
| 28 | e3.6 | 19 | e.18 | 3.5 | 4 | .04 | e33 | 171 | e14 |
| 29 | e3.6 | 20 | e.19 | 3.4 | 4 | .04 | e4.0 | 26 | e.32 |
| 30 | e3.6 | 22 | e.21 | --- | --- | --- | e2.7 | 21 | e.16 |
| 31 | e3.4 | 24 | e.22 | --- | --- | --- | e2.4 | 14 | e.09 |
| TOTAL | 423.0 | --- | 600.91 | 100.7 | --- | 5.78 | 115.0 | --- | 142.03 |

e Estimated

RIO GRANDE DE LOIZA BASIN

50055390 RIO BAIROA AT BAIROA, PR--Continued

SEDIMENT DISCHARGE, SUSPENDED (TONS/DAY), WATER YEAR OCTOBER 1991 TO SEPTEMBER 1992

| DAY | MEAN DISCHARGE (CFS) | MEAN CONCEN- TRATION (MG/L) | SEDIMENT DISCHARGE (TONS/DAY) | MEAN DISCHARGE (CFS) | MEAN CONCEN- TRATION (MG/L) | SEDIMENT DISCHARGE (TONS/DAY) | MEAN DISCHARGE (CFS) | MEAN CONCEN- TRATION (MG/L) | SEDIMENT DISCHARGE (TONS/DAY) |
|-------|----------------------------|--------------------------------------|-------------------------------------|----------------------------|--------------------------------------|-------------------------------------|----------------------------|--------------------------------------|-------------------------------------|
| APRIL | | | MAY | | | JUNE | | | |
| 1 | e2.3 | 11 | e.06 | e2.5 | 10 | e.06 | 5.1 | 7 | .10 |
| 2 | e2.4 | 7 | e.05 | e3.2 | 15 | e.13 | 5.0 | 6 | .09 |
| 3 | e2.4 | 8 | e.05 | e2.7 | 21 | e.16 | 4.0 | 5 | .06 |
| 4 | e2.4 | 15 | e.09 | e2.3 | 27 | e.16 | 9.4 | 37 | 10 |
| 5 | e2.3 | 25 | e.15 | e2.2 | 29 | e.17 | 3.8 | 13 | .13 |
| 6 | e2.4 | 34 | e.21 | e2.6 | 23 | e.16 | 4.8 | 15 | .26 |
| 7 | e2.7 | 34 | e.24 | e2.5 | 15 | e.09 | 5.1 | 15 | .24 |
| 8 | e2.6 | 26 | e.18 | e2.3 | 8 | e.05 | 5.6 | 18 | .59 |
| 9 | e2.4 | 15 | e.09 | e2.2 | 6 | e.04 | 5.9 | 20 | .60 |
| 10 | e2.3 | 7 | e.05 | e2.1 | 5 | e.03 | 5.5 | 18 | .31 |
| 11 | e2.4 | 6 | e.04 | e2.2 | 5 | e.02 | e4.5 | 20 | e.24 |
| 12 | e2.6 | 8 | e.06 | e3.0 | 4 | e.04 | e8.6 | 14 | e.32 |
| 13 | e2.4 | 11 | e.07 | e2.7 | 3 | e.02 | e8.2 | 21 | e.46 |
| 14 | e2.2 | 11 | e.06 | e2.4 | 3 | e.02 | e4.5 | 17 | e.20 |
| 15 | e2.2 | 8 | e.05 | e2.5 | 5 | e.03 | e3.8 | 5 | e.06 |
| 16 | e2.2 | 7 | e.05 | e3.5 | 12 | e.11 | e7.4 | 6 | e.12 |
| 17 | e2.4 | 10 | e.07 | e4.7 | 20 | e.25 | e4.1 | 8 | e.10 |
| 18 | e3.7 | 12 | e.11 | e3.4 | 26 | e.23 | e3.5 | 10 | e.10 |
| 19 | e7.4 | 26 | e1.3 | e4.3 | 28 | e.32 | e3.8 | 10 | e.10 |
| 20 | e3.5 | 26 | e.24 | e4.7 | 28 | e.36 | e3.8 | 10 | e.10 |
| 21 | e2.9 | 23 | e.18 | e6.4 | 27 | e.46 | e6.4 | 16 | e.27 |
| 22 | e2.5 | 21 | e.14 | e4.6 | 23 | e.28 | e4.2 | 13 | e.15 |
| 23 | e2.4 | 19 | e.12 | e32 | 18 | e1.5 | e4.5 | 5 | e.07 |
| 24 | e2.3 | 17 | e.11 | e30 | 14 | e1.1 | e3.8 | 6 | e.07 |
| 25 | e2.2 | 15 | e.09 | e14 | 12 | e.44 | e3.5 | 7 | e.06 |
| 26 | e2.2 | 14 | e.08 | e12 | 11 | e.34 | e3.2 | 6 | e.06 |
| 27 | e2.2 | 12 | e.60 | e10 | 9 | e.24 | e3.0 | 5 | e.04 |
| 28 | e2.2 | 10 | e.06 | 7.9 | 8 | .17 | e3.0 | 4 | e.04 |
| 29 | e2.1 | 8 | e.05 | 6.7 | 7 | .14 | e3.0 | 5 | e.04 |
| 30 | e2.2 | 7 | e.04 | 5.9 | 7 | .11 | e2.9 | 7 | e.06 |
| 31 | --- | --- | --- | 5.3 | 7 | .10 | --- | --- | --- |
| TOTAL | 78.4 | --- | 4.69 | 192.8 | --- | 7.33 | 143.9 | --- | 15.04 |

e Estimated

RIO GRANDE DE LOIZA BASIN

50055390 RIO BAIROA AT BAIROA, PR--Continued

SEDIMENT DISCHARGE, SUSPENDED (TONS/DAY), WATER YEAR OCTOBER 1991 TO SEPTEMBER 1992

| DAY | MEAN DISCHARGE (CFS) | MEAN CONCEN- TRATION (MG/L) | SEDIMENT DISCHARGE (TONS/DAY) | MEAN DISCHARGE (CFS) | MEAN CONCEN- TRATION (MG/L) | SEDIMENT DISCHARGE (TONS/DAY) | MEAN DISCHARGE (CFS) | MEAN CONCEN- TRATION (MG/L) | SEDIMENT DISCHARGE (TONS/DAY) |
|-------|----------------------------|--------------------------------------|-------------------------------------|----------------------------|--------------------------------------|-------------------------------------|----------------------------|--------------------------------------|-------------------------------------|
| JULY | | | AUGUST | | | SEPTEMBER | | | |
| 1 | e2.8 | 10 | e.07 | 3.6 | 5 | .04 | 5.4 | 19 | 1.6 |
| 2 | e2.8 | 10 | e.07 | 3.8 | 10 | .12 | 3.4 | 14 | .14 |
| 3 | e2.7 | 8 | e.06 | 4.9 | 18 | .35 | 3.2 | 5 | .06 |
| 4 | e3.1 | 7 | e.06 | 15 | 64 | 5.6 | 8.3 | 30 | 3.8 |
| 5 | e5.2 | 5 | e.07 | 82 | 405 | 262 | 4.4 | 15 | .24 |
| 6 | e3.0 | 3 | e.03 | 18 | 171 | 18 | 11 | 41 | 4.5 |
| 7 | e2.8 | 2 | e.02 | 9.5 | 84 | 4.1 | 49 | 248 | 249 |
| 8 | e5.2 | 2 | e.02 | 5.8 | 21 | .33 | 4.0 | 13 | .17 |
| 9 | e3.2 | 2 | e.02 | 4.7 | 15 | .19 | 7.5 | 28 | .91 |
| 10 | e3.0 | 2 | e.02 | 4.5 | 8 | .10 | 3.6 | 10 | .09 |
| 11 | e12 | 4 | e.12 | 5.7 | 12 | .30 | 4.4 | 13 | .40 |
| 12 | e7.6 | 2 | e.04 | 5.1 | 8 | .12 | 3.1 | 8 | .07 |
| 13 | 5.7 | 2 | .04 | 4.4 | 7 | .08 | 3.9 | 13 | .51 |
| 14 | 6.1 | 7 | .19 | 4.9 | 6 | .07 | 2.8 | 6 | .06 |
| 15 | 6.7 | 16 | .38 | 4.4 | 5 | .07 | 2.9 | 5 | .04 |
| 16 | 6.1 | 16 | .67 | 4.2 | 4 | .05 | 3.1 | 6 | .05 |
| 17 | 5.6 | 18 | .30 | 4.3 | 3 | .04 | 3.4 | 6 | .05 |
| 18 | 4.2 | 12 | .15 | 4.3 | 3 | .04 | 3.3 | 4 | .03 |
| 19 | 3.7 | 6 | .07 | 4.0 | 4 | .05 | e88 | 402 | e293 |
| 20 | 3.5 | 3 | .03 | 3.8 | 8 | .08 | e35 | 148 | e14 |
| 21 | 3.9 | 2 | .03 | 3.6 | 8 | .07 | e10 | 35 | e.94 |
| 22 | 3.8 | 3 | .04 | 3.7 | 4 | .04 | 3.9 | 12 | .14 |
| 23 | 5.0 | 11 | .30 | 3.4 | 3 | .03 | 3.5 | 10 | .09 |
| 24 | 4.1 | 14 | .18 | 3.8 | 6 | .08 | 3.5 | 10 | .09 |
| 25 | 4.1 | 11 | .11 | 3.2 | 3 | .02 | 3.6 | 9 | .09 |
| 26 | 3.7 | 6 | .06 | 3.4 | 4 | .03 | 3.7 | 8 | .08 |
| 27 | 3.7 | 4 | .04 | e2.9 | 5 | e.04 | 3.8 | 8 | .08 |
| 28 | 3.6 | 4 | .04 | e3.5 | 5 | e.04 | 4.0 | 8 | .08 |
| 29 | 3.2 | 4 | .04 | e5.2 | 5 | e.08 | 4.2 | 14 | .16 |
| 30 | 3.2 | 4 | .04 | e3.5 | 10 | e.16 | 4.2 | 19 | .21 |
| 31 | 3.1 | 5 | .04 | 3.8 | 12 | .25 | --- | --- | --- |
| TOTAL | 136.4 | --- | 3.35 | 236.9 | --- | 292.57 | 294.1 | --- | 570.68 |
| YEAR | 2276.2 | | 1815.80 | | | | | | |

e Estimated

RIO GRANDE DE LOIZA BASIN

259

50055390 RIO BAIROA AT BAIROA, PR--Continued

SEDIMENT DISCHARGE, SUSPENDED (TONS/DAY), WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993

| DAY | MEAN | MEAN | SEDIMENT | MEAN | MEAN | SEDIMENT | MEAN | MEAN | SEDIMENT |
|-------|-----------|---------|------------|-----------|---------|------------|-----------|---------|------------|
| | DISCHARGE | CONCEN- | DISCHARGE | DISCHARGE | CONCEN- | DISCHARGE | DISCHARGE | CONCEN- | DISCHARGE |
| | (CFS) | TRATION | (TONS/DAY) | (CFS) | (MG/L) | (TONS/DAY) | (CFS) | (MG/L) | (TONS/DAY) |
| | OCTOBER | | | NOVEMBER | | | DECEMBER | | |
| 1 | 3.4 | 8 | .08 | 8.1 | 29 | 1.5 | e20 | 83 | e4.5 |
| 2 | 3.4 | 8 | .08 | 3.7 | 20 | .21 | e9.0 | 18 | e.44 |
| 3 | 3.4 | 8 | .08 | 4.7 | 23 | .44 | e7.6 | 19 | e.39 |
| 4 | 3.3 | 8 | .08 | 27 | 308 | 41 | e7.3 | 20 | e.40 |
| 5 | 7.2 | 31 | 3.0 | 8.0 | 119 | 2.9 | e6.5 | 20 | e.36 |
| 6 | 73 | 791 | 791 | 5.9 | 32 | .54 | e6.3 | 20 | e.34 |
| 7 | 7.9 | 27 | 1.3 | 5.7 | 21 | .33 | e5.4 | 19 | e.28 |
| 8 | 5.4 | 17 | .45 | e6.0 | 21 | e.33 | e4.9 | 17 | e.23 |
| 9 | 4.0 | 11 | .12 | e13 | 17 | e.58 | e4.6 | 17 | e.21 |
| 10 | 16 | 95 | 19 | e30 | 12 | e.94 | e4.5 | 20 | e.24 |
| 11 | 5.1 | 16 | .27 | e8.0 | 9 | e.20 | e4.6 | 25 | e.31 |
| 12 | 3.5 | 7 | .07 | e6.4 | 8 | e.14 | e4.5 | 29 | e.35 |
| 13 | 3.4 | 8 | .07 | e6.2 | 10 | e.16 | e6.2 | 28 | e.46 |
| 14 | 3.6 | 10 | .10 | e6.4 | 15 | e.26 | e11 | 24 | e.70 |
| 15 | 3.4 | 12 | .12 | e6.0 | 21 | e.34 | e5.0 | 22 | e.30 |
| 16 | e3.5 | e19 | e.18 | e15 | 28 | e1.1 | e5.4 | 22 | e.32 |
| 17 | e9.0 | e38 | e.91 | e29 | 36 | e2.8 | e5.8 | 20 | e.31 |
| 18 | e19 | e50 | e2.6 | e35 | 78 | e7.3 | e5.2 | 16 | e.23 |
| 19 | e9.0 | 50 | e1.2 | e11 | 113 | e3.3 | e5.2 | 12 | e.17 |
| 20 | e6.0 | 47 | e.75 | e8.4 | 110 | e2.5 | e4.4 | 10 | e.12 |
| 21 | e4.5 | 45 | e.54 | e9.0 | 110 | e2.7 | e9.0 | 28 | e.68 |
| 22 | e6.4 | 40 | e.68 | e11 | 110 | e3.3 | e9.0 | 28 | e.68 |
| 23 | e4.0 | 33 | e.35 | e10 | 110 | e3.0 | e5.0 | 13 | e.18 |
| 24 | e6.8 | 26 | e.47 | e8.6 | 110 | e2.6 | e6.2 | 17 | e.28 |
| 25 | 4.2 | 20 | .24 | e7.2 | 110 | e2.1 | e5.9 | 16 | e.26 |
| 26 | 3.5 | 17 | .16 | e15 | 110 | e4.5 | e337 | 4300 | e3910 |
| 27 | 3.5 | 13 | .12 | e80 | 577 | e125 | e23 | 102 | e6.3 |
| 28 | 3.6 | 10 | .10 | e150 | 1480 | e599 | e15 | 56 | e2.3 |
| 29 | 3.5 | 10 | .11 | e20 | 84 | e4.5 | e31 | 152 | e13 |
| 30 | 3.2 | 11 | .10 | e113 | 964 | e294 | e19 | 112 | e5.7 |
| 31 | 3.7 | 11 | .10 | --- | --- | --- | e17 | 169 | e7.4 |
| TOTAL | 239.4 | --- | 824.43 | 667.3 | --- | 1107.57 | 610.5 | --- | 3957.44 |

e Estimated

RIO GRANDE DE LOIZA BASIN

50055390 RIO BAIROA AT BAIROA, PR--Continued

SEDIMENT DISCHARGE, SUSPENDED (TONS/DAY), WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993

| DAY | MEAN DISCHARGE (CFS) | MEAN CONCEN- TRATION (MG/L) | SEDIMENT DISCHARGE (TONS/DAY) | MEAN DISCHARGE (CFS) | MEAN CONCEN- TRATION (MG/L) | SEDIMENT DISCHARGE (TONS/DAY) | MEAN DISCHARGE (CFS) | MEAN CONCEN- TRATION (MG/L) | SEDIMENT DISCHARGE (TONS/DAY) |
|---------|----------------------------|--------------------------------------|-------------------------------------|----------------------------|--------------------------------------|-------------------------------------|----------------------------|--------------------------------------|-------------------------------------|
| JANUARY | | | FEBRUARY | | | MARCH | | | |
| 1 | 13 | 134 | 4.9 | 5.0 | 6 | .08 | 3.6 | 5 | .06 |
| 2 | 13 | 117 | 4.1 | 5.0 | 5 | .06 | 3.9 | 5 | .05 |
| 3 | 12 | 106 | 3.6 | 5.7 | 13 | .23 | 3.4 | 4 | .03 |
| 4 | 12 | 98 | 3.0 | 4.7 | 6 | .08 | 3.4 | 4 | .03 |
| 5 | 16 | 102 | 5.5 | 4.7 | 9 | .11 | 3.5 | 5 | .05 |
| 6 | 13 | 47 | 1.9 | 4.8 | 11 | .13 | 3.5 | 5 | .05 |
| 7 | 17 | 71 | 4.0 | 4.6 | 12 | .14 | 3.4 | 5 | .04 |
| 8 | e11 | 28 | e.83 | 4.8 | 12 | .14 | 3.4 | 5 | .04 |
| 9 | e7.2 | 20 | e.38 | 4.7 | 11 | .13 | 3.4 | 4 | .04 |
| 10 | e7.0 | 20 | e.38 | 4.7 | 11 | .13 | 3.4 | 5 | .05 |
| 11 | e7.2 | 20 | e.38 | 4.5 | 8 | .10 | 3.5 | 10 | .09 |
| 12 | e6.6 | 15 | e.27 | 4.8 | 5 | .07 | 3.5 | 12 | .11 |
| 13 | 6.4 | 10 | .17 | 4.8 | 4 | .06 | 3.3 | 8 | .08 |
| 14 | 6.2 | 10 | .17 | 4.5 | 6 | .07 | 3.1 | 6 | .05 |
| 15 | 6.1 | 10 | .17 | 4.6 | 8 | .10 | 3.5 | 5 | .04 |
| 16 | 6.0 | 10 | .17 | 7.8 | 27 | 1.3 | 4.8 | 15 | .33 |
| 17 | 5.9 | 10 | .16 | 4.3 | 10 | .12 | 4.0 | 8 | .10 |
| 18 | 5.7 | 10 | .16 | 3.8 | 5 | .05 | 3.5 | 7 | .07 |
| 19 | 5.7 | 10 | .16 | 3.7 | 3 | .03 | 3.3 | 7 | .06 |
| 20 | 5.9 | 10 | .16 | 4.1 | 4 | .05 | 3.3 | 8 | .07 |
| 21 | 6.0 | 10 | .16 | 4.6 | 6 | .08 | 2.9 | 11 | .09 |
| 22 | 8.3 | 26 | .94 | 3.6 | 8 | .09 | 3.0 | 13 | .11 |
| 23 | 7.0 | 20 | .62 | 3.5 | 8 | .08 | e4.0 | 14 | e.16 |
| 24 | 5.0 | 7 | .10 | 3.7 | 8 | .08 | e4.2 | 12 | e.13 |
| 25 | 5.9 | 12 | .21 | 3.6 | 8 | .08 | e3.7 | 7 | e.06 |
| 26 | 5.4 | 7 | .10 | 4.5 | 13 | .24 | e3.6 | 4 | e.04 |
| 27 | 5.2 | 7 | .10 | 3.6 | 8 | .08 | e3.3 | 4 | e.04 |
| 28 | 5.2 | 7 | .10 | 3.2 | 10 | .09 | e3.2 | 5 | e.04 |
| 29 | 6.1 | 17 | .39 | --- | --- | --- | e3.2 | 5 | e.05 |
| 30 | 5.2 | 7 | .10 | --- | --- | --- | e3.2 | 5 | e.05 |
| 31 | 5.2 | 7 | .10 | --- | --- | --- | e3.2 | 5 | e.04 |
| TOTAL | 247.4 | --- | 33.48 | 125.9 | --- | 4.00 | 108.2 | --- | 2.25 |

e Estimated

RIO GRANDE DE LOIZA BASIN

50055390 RIO BAIROA AT BAIROA, PR--Continued

SEDIMENT DISCHARGE, SUSPENDED (TONS/DAY), WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993

| DAY | MEAN DISCHARGE (CFS) | MEAN CONCEN- TRATION (MG/L) | SEDIMENT DISCHARGE (TONS/DAY) | MEAN DISCHARGE (CFS) | MEAN CONCEN- TRATION (MG/L) | SEDIMENT DISCHARGE (TONS/DAY) | MEAN DISCHARGE (CFS) | MEAN CONCEN- TRATION (MG/L) | SEDIMENT DISCHARGE (TONS/DAY) |
|-------|----------------------------|--------------------------------------|-------------------------------------|----------------------------|--------------------------------------|-------------------------------------|----------------------------|--------------------------------------|-------------------------------------|
| APRIL | | | MAY | | | JUNE | | | |
| 1 | e3.1 | 4 | e.04 | e12 | 15 | e.48 | e8.9 | 7 | e.18 |
| 2 | e2.9 | 3 | e.03 | e23 | 15 | e.94 | e8.2 | 13 | e.28 |
| 3 | e2.7 | 3 | e.02 | e26 | 15 | e1.1 | e7.5 | 17 | e.33 |
| 4 | e2.8 | 5 | e.04 | e7.1 | 15 | e.27 | e6.4 | 19 | e.32 |
| 5 | e2.8 | 6 | e.04 | e6.8 | 14 | e.25 | e5.9 | 20 | e.31 |
| 6 | e2.7 | 7 | e.05 | e7.9 | 13 | e.28 | e5.6 | 22 | e.32 |
| 7 | e3.0 | 10 | e.08 | e12 | 12 | e.39 | e5.4 | 27 | e.39 |
| 8 | e5.4 | 12 | e.17 | e7.8 | 13 | e.27 | e5.9 | 33 | e.52 |
| 9 | e7.4 | 14 | e.27 | e6.8 | 19 | e.34 | e7.0 | 25 | e.47 |
| 10 | e6.0 | 15 | e.23 | e19 | 28 | e1.4 | 8.7 | 12 | .29 |
| 11 | e6.2 | 15 | e.26 | e9.0 | 36 | e.88 | 7.0 | 8 | .16 |
| 12 | e8.0 | 18 | e.38 | e6.6 | 43 | e.76 | 6.9 | 7 | .14 |
| 13 | e13 | 22 | e.77 | e6.2 | 43 | e.71 | 6.8 | 9 | .16 |
| 14 | e20 | 24 | e1.3 | e51 | 38 | e5.2 | 10 | 37 | 2.5 |
| 15 | e12 | 22 | e.70 | e14 | 33 | e1.3 | 11 | 43 | 1.6 |
| 16 | e8.0 | 17 | e.37 | e10 | 26 | e.71 | 8.1 | 49 | 1.2 |
| 17 | e6.8 | 13 | e.24 | e8.0 | 19 | e.40 | 7.0 | 28 | .56 |
| 18 | e5.6 | 10 | e.14 | e6.0 | 14 | e.22 | 7.1 | 23 | .56 |
| 19 | e6.7 | 9 | e.16 | 5.7 | 11 | .16 | 27 | 155 | 15 |
| 20 | e6.0 | 14 | e.22 | 5.7 | 8 | .12 | 20 | 115 | 9.1 |
| 21 | e6.5 | 19 | e.33 | 5.5 | 6 | .09 | 9.4 | 51 | 1.4 |
| 22 | e5.0 | 19 | e.24 | 5.4 | 5 | .08 | 9.3 | 31 | .71 |
| 23 | e6.0 | 16 | e.25 | 18 | 103 | 17 | 7.8 | 23 | .50 |
| 24 | e4.9 | 14 | e.18 | 7.4 | 22 | .47 | 7.1 | 20 | .39 |
| 25 | e5.2 | 14 | e.19 | 7.9 | 17 | .38 | 6.9 | 15 | .28 |
| 26 | e6.8 | 15 | e.27 | 36 | 384 | 143 | 7.0 | 12 | .21 |
| 27 | e9.0 | 15 | e.36 | 18 | 79 | 5.1 | 6.7 | 11 | .21 |
| 28 | e8.4 | 15 | e.34 | e11 | 27 | e1.0 | 10 | 50 | 3.4 |
| 29 | e10 | 15 | e.40 | e10 | 8 | e.24 | 7.3 | 33 | .72 |
| 30 | e23 | 15 | e.94 | e9.0 | 7 | e.17 | 7.4 | 49 | .93 |
| 31 | --- | --- | --- | e9.7 | 5 | e.15 | --- | --- | --- |
| TOTAL | 215.9 | --- | 9.01 | 388.5 | --- | 183.86 | 259.3 | --- | 43.14 |

e Estimated

RIO GRANDE DE LOIZA BASIN

50055390 RIO BAIROA AT BAIROA, PR--Continued

SEDIMENT DISCHARGE, SUSPENDED (TONS/DAY), WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993

| DAY | MEAN DISCHARGE (CFS) | MEAN CONCEN- TRATION (MG/L) | SEDIMENT DISCHARGE (TONS/DAY) | MEAN DISCHARGE (CFS) | MEAN CONCEN- TRATION (MG/L) | SEDIMENT DISCHARGE (TONS/DAY) | MEAN DISCHARGE (CFS) | MEAN CONCEN- TRATION (MG/L) | SEDIMENT DISCHARGE (TONS/DAY) |
|-------|----------------------------|--------------------------------------|-------------------------------------|----------------------------|--------------------------------------|-------------------------------------|----------------------------|--------------------------------------|-------------------------------------|
| JULY | | | AUGUST | | | SEPTEMBER | | | |
| 1 | 5.8 | 44 | .70 | 7.0 | 8 | .15 | 4.6 | 10 | .12 |
| 2 | 7.2 | 40 | .82 | 6.8 | 7 | .13 | 4.7 | 9 | .11 |
| 3 | 8.1 | 30 | .81 | 6.8 | 5 | .10 | 4.7 | 7 | .09 |
| 4 | 6.2 | 19 | .35 | 6.6 | 5 | .08 | 8.7 | 29 | 1.9 |
| 5 | 5.7 | 16 | .26 | 6.6 | 6 | .11 | 6.8 | 23 | .60 |
| 6 | 5.4 | 16 | .24 | 6.5 | 9 | .16 | 6.4 | 21 | .54 |
| 7 | 14 | 83 | 14 | 6.4 | 10 | .18 | 5.0 | 14 | .21 |
| 8 | 6.1 | 18 | .33 | 6.4 | 10 | .18 | 4.7 | 10 | .12 |
| 9 | 4.8 | 13 | .17 | 6.1 | 14 | .24 | 6.1 | 16 | .41 |
| 10 | 5.0 | 16 | .29 | 6.0 | 21 | .33 | 5.4 | 16 | .26 |
| 11 | 80 | 785 | 401 | 6.1 | 25 | .41 | 4.6 | 7 | .10 |
| 12 | 17 | 76 | 4.4 | 6.3 | 22 | .38 | 4.5 | 5 | .06 |
| 13 | 11 | 28 | .91 | 6.2 | 14 | .23 | 4.9 | 11 | .21 |
| 14 | 9.6 | 17 | .46 | 6.6 | 10 | .17 | 4.7 | 14 | .18 |
| 15 | 14 | 57 | 5.8 | 6.9 | 13 | .35 | 5.4 | 18 | .43 |
| 16 | 10 | 27 | .85 | 24 | 118 | 11 | 6.8 | 22 | .79 |
| 17 | 8.3 | 15 | .33 | 7.4 | 20 | .47 | 5.1 | 14 | .20 |
| 18 | 7.9 | 11 | .24 | 6.3 | 11 | .19 | 112 | 1500 | 2480 |
| 19 | 7.7 | 12 | .24 | 6.1 | 10 | .16 | 35 | 194 | 22 |
| 20 | 7.2 | 12 | .24 | 5.7 | 10 | .15 | 20 | 93 | 7.0 |
| 21 | 7.2 | 12 | .24 | 5.3 | 10 | .14 | e6.8 | 31 | e.59 |
| 22 | 14 | 56 | 4.2 | 22 | 136 | 27 | e4.3 | 28 | e.31 |
| 23 | 23 | 115 | 10 | 8.8 | 26 | .72 | e6.2 | 33 | e.85 |
| 24 | 24 | 130 | 14 | 6.2 | 10 | .17 | e5.5 | 18 | e.33 |
| 25 | 11 | 38 | 1.2 | 5.7 | 6 | .10 | e5.7 | 43 | e1.9 |
| 26 | 9.4 | 31 | .93 | 5.6 | 6 | .09 | e5.1 | 18 | e.32 |
| 27 | 8.4 | 19 | .47 | 5.3 | 6 | .08 | e3.9 | 9 | e.10 |
| 28 | 7.8 | 10 | .20 | 5.2 | 6 | .08 | e7.2 | 30 | e1.3 |
| 29 | 7.5 | 9 | .18 | 4.9 | 6 | .08 | e8.0 | 26 | e.68 |
| 30 | 7.1 | 8 | .17 | 4.9 | 8 | .10 | e6.4 | 24 | e.56 |
| 31 | 7.1 | 8 | .16 | 4.7 | 10 | .12 | --- | --- | --- |
| TOTAL | 367.5 | --- | 464.19 | 225.4 | --- | 43.85 | 319.2 | --- | 2522.27 |
| YEAR | 3774.5 | | 9195.49 | | | | | | |

e Estimated

RIO GRANDE DE LOIZA BASIN

50055390 RIO BAIROA AT BAIROA, PR--Continued

WATER QUALITY DATA, WATER YEAR JULY 1992 TO SEPTEMBER 1993

PARTICLE-SIZE DISTRIBUTION OF SUSPENDED SEDIMENT

| DATE | TIME | DIS- CHARGE, INST. CUBIC FEET PER SECOND | SEDI- MENT, SUS- PENDE (MG/L) | SEDI- MENT, DIS- CHARGE, SUS- PENDE (T/DAY) | SED. SUSP. FALL DIAM. PERCENT FINER THAN .002 MM | SED. SUSP. FALL DIAM. PERCENT FINER THAN .004 MM | SED. SUSP. FALL DIAM. PERCENT FINER THAN .008 MM |
|----------|------|--|---|---|---|---|---|
| DEC 1992 | | | | | | | |
| 26... | 1540 | 330 | 3220 | 2870 | 54 | 62 | 72 |
| MAY 1993 | | | | | | | |
| 26... | 1631 | 243 | 3860 | 2530 | 27 | 41 | 48 |
| SEP | | | | | | | |
| 18... | 1545 | 550 | 14600 | 21700 | 26 | 31 | 43 |
| 18... | 1704 | 634 | 7700 | 13200 | 39 | 55 | 65 |

| DATE | SED. SUSP. FALL DIAM. PERCENT FINER THAN .016 MM | SED. SUSP. FALL DIAM. PERCENT FINER THAN .031 MM | SED. SUSP. SIEVE DIAM. PERCENT FINER THAN .062 MM | SED. SUSP. SIEVE DIAM. PERCENT FINER THAN .125 MM | SED. SUSP. SIEVE DIAM. PERCENT FINER THAN .250 MM | SED. SUSP. SIEVE DIAM. PERCENT FINER THAN .500 MM | SED. SUSP. SIEVE DIAM. PERCENT FINER THAN 1.00 MM |
|----------|---|---|--|--|--|--|--|
| DEC 1992 | | | | | | | |
| 26... | 75 | 84 | 94 | 97 | 99 | 99.5 | 99.6 |
| MAY 1993 | | | | | | | |
| 26... | 57 | 68 | 73 | 81 | 90 | 98 | 100 |
| SEP | | | | | | | |
| 18... | 53 | 62 | 72 | 79 | 88 | 96 | 99 |
| 18... | 74 | 78 | 89 | 92 | 95 | 99 | 100 |

RIO GRANDE DE LOIZA BASIN

50055390 RIO BAIROA AT BAIROA, PR--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993

SILT AND CLAY PERCENT OF SUSPENDED SEDIMENT

| DATE | TIME | STREAM- FLOW, INSTAN- TANEOUS (CFS) | SEDI- MENT, SUS- PENDED (MG/L) | SEDI- MENT, DIS- CHARGE, SUS- PENDED (T/DAY) | SED. SUSP. SIEVE DIAM. PERCENT FINER THAN .062 MM |
|----------|------|---|--|--|--|
| OCT 1992 | | | | | |
| 07... | 1714 | 6.7 | 123 | 2.2 | 100 |
| NOV | | | | | |
| 28... | 1621 | 150 | 777 | 315 | 99 |
| MAY 1993 | | | | | |
| 26... | 1359 | 88 | 565 | 134 | 76 |
| JUL | | | | | |
| 24... | 0830 | 54 | 750 | 109 | 97 |
| SEP | | | | | |
| 18... | 1720 | 614 | 10600 | 17500 | 78 |

RIO GRANDE DE LOIZA BASIN

265

50055400 RIO BAIROA NEAR CAGUAS, PR

WATER-QUALITY RECORDS

LOCATION.--Lat 18°15'28", long 66°02'13", at bridge on Highway 1, about 2.5 mi (4.0 km) upstream from Río Grande de Loiza, and 1.4 mi (2.3 km) north of Caguas plaza.

DRAINAGE AREA.--5.4 mi² (14.0 km²).

PERIOD OF RECORD.--Water years 1958, 1962-66, 1973-74, 1979 to current year.

WATER-QUALITY DATA, WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993

| DATE | TIME | DIS-CHARGE, INST. CUBIC FEET PER SECOND | SPE-CIFIC CON-DUCT-ANCE (US/CM) | PH WATER WHOLE FIELD (STAND-ARD UNITS) | TEMPER-ATURE WATER (DEG C) | TUR-BID-ITY (NTU) | OXYGEN, DIS-SOLVED (MG/L) | OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION) | OXYGEN DEMAND, CHEM-ICAL (HIGH LEVEL) (MG/L) | COLI-FORM, FECAL, 0.45 UM-MF (COLS./100 ML) | STREP-TOCOCCI, FECAL, (COLS. PER 100 ML) |
|-----------|------|---|---------------------------------|--|----------------------------|-------------------|---------------------------|---|--|---|--|
| OCT 1992 | | | | | | | | | | | |
| 07... | 1240 | 2.7 | 300 | 7.4 | 26.1 | 53 | 6.5 | 82 | 19 | 35000 | 20000 |
| DEC 07... | 0915 | 6.6 | 430 | 7.7 | 22.7 | 29 | 6.6 | 79 | <10 | 15000 | K2700 |
| FEB 1993 | | | | | | | | | | | |
| 11... | 0745 | 7.9 | 498 | 7.8 | 22.3 | 2.7 | 6.5 | 77 | <10 | 210000 | 6400 |
| APR 12... | 1445 | 9.0 | 420 | 7.1 | 26.5 | 28 | 4.7 | 58 | 18 | K23000 | 24000 |
| JUN 09... | 1330 | 5.8 | 400 | 7.8 | 27.6 | 53 | 7.7 | 97 | 45 | K44000 | K160000 |
| AUG 05... | 1125 | 4.5 | 398 | 7.0 | 26.4 | 0.40 | 6.6 | 80 | <10 | K10000 | K2600 |

| DATE | HARD-NESS TOTAL (MG/L AS CACO3) | HARD-NESS NONCARB WH WAT TOT FLD MG/L AS CACO3 | CALCIUM DIS-SOLVED (MG/L AS CA) | MAGNE-SIUM, DIS-SOLVED (MG/L AS MG) | SODIUM, DIS-SOLVED (MG/L AS NA) | SODIUM AD-SORP-TION RATIO | POTAS-SIUM, DIS-SOLVED (MG/L AS K) | ALKA-LINITY WAT WH TOT FET MG/L AS CACO3 | SULFIDE TOTAL (MG/L AS S) | SULFATE DIS-SOLVED (MG/L AS SO4) | CHLO-RIDE, DIS-SOLVED (MG/L AS CL) |
|-----------|---------------------------------|--|---------------------------------|-------------------------------------|---------------------------------|---------------------------|------------------------------------|--|---------------------------|----------------------------------|------------------------------------|
| OCT 1992 | | | | | | | | | | | |
| 07... | 130 | 6 | 22 | 13 | 21 | 0.6 | 2.9 | 110 | 1.4 | 12 | 27 |
| DEC 07... | -- | -- | -- | -- | -- | -- | -- | 130 | -- | -- | -- |
| FEB 1993 | | | | | | | | | | | |
| 11... | -- | -- | -- | -- | -- | -- | -- | 160 | -- | -- | -- |
| APR 12... | 110 | 1 | 29 | 10 | 19 | 0.8 | 4.4 | 100 | <0.5 | 19 | 25 |
| JUN 09... | -- | -- | -- | -- | -- | -- | -- | 160 | -- | -- | -- |
| AUG 05... | 150 | 5 | 37 | 15 | 24 | 0.8 | 3.7 | 120 | -- | 18 | 28 |

| DATE | FLUO-RIDE, DIS-SOLVED (MG/L AS F) | SILICA, DIS-SOLVED (MG/L AS SIO2) | SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L) | SOLIDS, DIS-SOLVED (TONS PER DAY) | RESIDUE TOTAL AT 105 DEG. C, SUS-PENDED (MG/L) | NITRO-GEN, NITRATE TOTAL (MG/L AS N) | NITRO-GEN, NITRITE TOTAL (MG/L AS N) | NITRO-GEN, NO2+NO3 TOTAL (MG/L AS N) | NITRO-GEN, AMMONIA TOTAL (MG/L AS N) | NITRO-GEN, ORGANIC TOTAL (MG/L AS N) |
|-----------|-----------------------------------|-----------------------------------|---|-----------------------------------|--|--------------------------------------|--------------------------------------|--------------------------------------|--------------------------------------|--------------------------------------|
| OCT 1992 | | | | | | | | | | |
| 07... | 0.10 | 30 | 172 | 1.25 | 29 | 1.55 | 0.050 | 1.60 | 0.130 | 0.47 |
| DEC 07... | -- | -- | -- | -- | 16 | 0.230 | 0.130 | 0.360 | 8.70 | 2.3 |
| FEB 1993 | | | | | | | | | | |
| 11... | -- | -- | -- | -- | 2 | 0.120 | 0.060 | 0.180 | 11.0 | 5.0 |
| APR 12... | 0.10 | 23 | 189 | 4.58 | 40 | 0.100 | 0.080 | 0.180 | 13.0 | 5.0 |
| JUN 09... | -- | -- | -- | -- | 515 | 0.510 | 0.100 | 0.610 | 6.80 | 2.5 |
| AUG 05... | 0.20 | 31 | 239 | 2.90 | 1 | 0.130 | 0.080 | 0.210 | 0.610 | 13 |

K = non-ideal count

RIO GRANDE DE LOIZA BASIN

50055400 RIO BAIROA NEAR CAGUAS, PR--Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993

| DATE | NITRO- GEN, AM- MONIA + ORGANIC TOTAL (MG/L AS N) | NITRO- GEN, TOTAL (MG/L AS N) | NITRO- GEN, TOTAL (MG/L AS NO3) | PHOS- PHORUS TOTAL (MG/L AS P) | ARSENIC TOTAL (UG/L AS AS) | BARIUM, TOTAL RECOV- ERABLE (UG/L AS BA) | BORON, TOTAL RECOV- ERABLE (UG/L AS B) | CADMIUM TOTAL RECOV- ERABLE (UG/L AS CD) | CHRO- MIUM, TOTAL RECOV- ERABLE (UG/L AS CR) | COPPER, TOTAL RECOV- ERABLE (UG/L AS CU) |
|----------|---|---|---|--|-------------------------------------|---|---|---|--|---|
| OCT 1992 | | | | | | | | | | |
| 07... | 0.60 | 2.2 | 9.7 | 0.350 | <1 | <100 | <10 | <1 | <1 | <10 |
| DEC 1992 | | | | | | | | | | |
| 07... | 11 | 19 | 50 | 3.10 | -- | -- | -- | -- | -- | -- |
| FEB 1993 | | | | | | | | | | |
| 11... | 16 | 13 | 72 | 3.30 | -- | -- | -- | -- | -- | -- |
| APR 1993 | | | | | | | | | | |
| 12... | 18 | 12 | 80 | 3.60 | <1 | <100 | 120 | <1 | 5 | 20 |
| JUN 1993 | | | | | | | | | | |
| 09... | 9.3 | 9.9 | 44 | 2.90 | -- | -- | -- | -- | -- | -- |
| AUG 1993 | | | | | | | | | | |
| 05... | 14 | 10 | 63 | 2.70 | -- | -- | -- | -- | -- | -- |

[illegible]

RIO GRANDE DE LOIZA BASIN

50055750 RIO GURABO BELOW EL MANGO, PR

LOCATION.--Lat 18°14'02", long 65°53'07", Hydrologic Unit 21010005, on left bank, 2.43 mi (3.91 km) northeast of Plaza de Juncos, 1.3 mi (2.1 km) southeast of Escuela La Placita and 0.35 mi (0.56 km) southwest of El Mango.

DRAINAGE AREA.--22.3 mi² (57.8 km²).

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--March 1990 to current year.

GAGE.--Water-stage recorder. Elevation of gage is 230 ft (70 m), from topographic map.

REMARKS.--Records fair except those for estimated daily discharges, which are poor. Gage-height and precipitation satellite telemetry at station. Low-flow is affected by sewage discharges from a water treatment plant, 0.60 mi (0.96m) upstream from gaging station since 1990.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993
DAILY MEAN VALUES

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|-------|-------|--------|--------|------|-------|-------|-------|-------|--------|------|-------|--------|
| 1 | 21 | 4.1 | 32 | 27 | 14 | 5.5 | 4.3 | 134 | 8.1 | 13 | 14 | 12 |
| 2 | 12 | 2.5 | 17 | 18 | 31 | 5.4 | 4.1 | 111 | 7.5 | 21 | 12 | 9.3 |
| 3 | 5.1 | 24 | 11 | 20 | 28 | 5.2 | 3.9 | 21 | 7.4 | 94 | 11 | 7.7 |
| 4 | 3.6 | 122 | 17 | 21 | 15 | 5.1 | 4.2 | 12 | 6.8 | 31 | 11 | 7.7 |
| 5 | 3.5 | 18 | 10 | 21 | 11 | 5.1 | 4.2 | 8.6 | 6.2 | 15 | 10 | 69 |
| 6 | 16 | 47 | 71 | 33 | 10 | 4.9 | 7.2 | 8.3 | 5.6 | 11 | 9.8 | 29 |
| 7 | 8.3 | 44 | 11 | 84 | 9.8 | 4.8 | 5.3 | 7.5 | 5.0 | 40 | 9.1 | 11 |
| 8 | 3.7 | 6.6 | 6.0 | 48 | 9.1 | 4.8 | 5.3 | 6.9 | 14 | 93 | 8.6 | 150 |
| 9 | 3.3 | 8.6 | 4.5 | 31 | 8.5 | 4.8 | 6.5 | 140 | 35 | 20 | 8.0 | 56 |
| 10 | 3.0 | 59 | 4.0 | 28 | 8.2 | 4.8 | 5.1 | 36 | 35 | 12 | 7.8 | 81 |
| 11 | 2.3 | 7.5 | 3.4 | 21 | 7.6 | 4.6 | 4.2 | 12 | 16 | 1710 | 7.8 | 28 |
| 12 | 2.0 | 3.7 | 3.0 | 18 | 10 | 4.9 | 4.4 | 7.0 | 9.8 | 184 | 7.8 | 13 |
| 13 | 1.8 | 8.9 | 2.8 | 17 | 13 | 4.6 | 23 | 4.5 | 82 | 74 | 7.4 | 10 |
| 14 | 1.6 | 4.4 | 2.8 | 16 | 8.5 | 4.6 | 12 | 5.0 | 145 | 51 | 6.9 | 9.2 |
| 15 | 1.4 | 96 | 3.2 | 16 | 8.0 | 4.6 | 9.3 | 6.7 | 29 | 208 | 7.0 | 8.3 |
| 16 | 2.0 | 100 | 2.8 | 15 | 7.6 | 4.9 | 8.1 | 3.1 | 13 | 234 | 11 | 42 |
| 17 | 3.1 | 34 | 2.6 | 15 | 7.3 | 9.0 | 8.8 | 2.3 | 9.7 | 46 | 11 | 115 |
| 18 | 1.6 | 301 | 2.6 | 13 | 8.7 | 9.9 | 5.0 | 3.8 | 8.6 | 28 | 7.6 | 84 |
| 19 | 1.5 | 72 | 2.7 | 13 | 7.1 | 6.7 | 17 | 2.3 | 1290 | 22 | 6.4 | 40 |
| 20 | 1.8 | 16 | 2.5 | 12 | 6.9 | 6.2 | 9.1 | 1.4 | 417 | 19 | 6.3 | 18 |
| 21 | 2.5 | 15 | 2.2 | 11 | 14 | 6.5 | 16 | 1.8 | 55 | 16 | 6.0 | 12 |
| 22 | 1.6 | 134 | 3.3 | 14 | 9.8 | 4.9 | 7.5 | 1.3 | 33 | 328 | 5.5 | 11 |
| 23 | 1.5 | 34 | 3.6 | e33 | 7.3 | 4.6 | 15 | 2.8 | 24 | 831 | 25 | 10 |
| 24 | 1.4 | 10 | 5.9 | 13 | 7.0 | 9.1 | 67 | 2.6 | 19 | 154 | 28 | 9.4 |
| 25 | 1.7 | 9.3 | 13 | e23 | 6.3 | 9.0 | 13 | 5.3 | 16 | 55 | 23 | 11 |
| 26 | 1.5 | 7.3 | 302 | 17 | 6.2 | 6.1 | 7.7 | 4.7 | 13 | 107 | 10 | 9.9 |
| 27 | 1.1 | 282 | 27 | 19 | 6.2 | 5.5 | 6.3 | 40 | 12 | 62 | 7.6 | 9.8 |
| 28 | 1.2 | 666 | 12 | e60 | 6.1 | 5.1 | 8.9 | 35 | 11 | 30 | 7.6 | 47 |
| 29 | 2.2 | 51 | 274 | 269 | --- | 4.7 | 8.3 | 14 | 10 | 21 | 6.7 | 24 |
| 30 | 1.4 | 872 | 515 | 28 | --- | 4.3 | 30 | 11 | 18 | 17 | 6.5 | 225 |
| 31 | 9.7 | --- | 42 | 22 | --- | 4.3 | --- | 8.8 | --- | 15 | 9.1 | --- |
| TOTAL | 124.4 | 3059.9 | 1411.9 | 996 | 292.2 | 174.5 | 330.7 | 660.7 | 2361.7 | 4562 | 315.5 | 1169.3 |
| MEAN | 4.01 | 102 | 45.5 | 32.1 | 10.4 | 5.63 | 11.0 | 21.3 | 78.7 | 147 | 10.2 | 39.0 |
| MAX | 21 | 872 | 515 | 269 | 31 | 9.9 | 67 | 140 | 1290 | 1710 | 28 | 225 |
| MIN | 1.1 | 2.5 | 2.2 | 11 | 6.1 | 4.3 | 3.9 | 1.3 | 5.0 | 11 | 5.5 | 7.7 |
| AC-FT | 247 | 6070 | 2800 | 1980 | 580 | 346 | 656 | 1310 | 4680 | 9050 | 626 | 2320 |
| CFSM | .18 | 4.57 | 2.04 | 1.44 | .47 | .25 | .49 | .96 | 3.53 | 6.60 | .46 | 1.75 |
| IN. | .21 | 5.10 | 2.36 | 1.66 | .49 | .29 | .55 | 1.10 | 3.94 | 7.61 | .53 | 1.95 |

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1990 - 1993, BY WATER YEAR (WY)

| | MEAN | 64.6 | 82.1 | 42.9 | 44.7 | 22.4 | 11.1 | 9.30 | 41.3 | 58.9 | 54.7 | 28.1 | 50.1 |
|------|------|------|------|------|------|------|------|------|------|------|------|------|------|
| MAX | 161 | 109 | 59.0 | 65.8 | 44.0 | 18.1 | 11.0 | 123 | 117 | 147 | 35.2 | 81.9 | |
| (WY) | 1991 | 1992 | 1991 | 1992 | 1991 | 1991 | 1993 | 1992 | 1992 | 1993 | 1990 | 1992 | |
| MIN | 4.01 | 35.5 | 24.1 | 32.1 | 10.4 | 5.63 | 7.52 | 4.83 | 14.7 | 12.8 | 10.2 | 34.9 | |
| (WY) | 1993 | 1991 | 1992 | 1993 | 1993 | 1993 | 1990 | 1990 | 1991 | 1992 | 1993 | 1990 | |

SUMMARY STATISTICS

FOR 1992 CALENDAR YEAR

FOR 1993 WATER YEAR

WATER YEARS 1990 - 1993

| | | | |
|--------------------------|---------|---------|-------|
| ANNUAL TOTAL | 18842.0 | 15458.8 | |
| ANNUAL MEAN | 51.5 | 42.4 | 45.4 |
| HIGHEST ANNUAL MEAN | | | 52.3 |
| LOWEST ANNUAL MEAN | | | 41.6 |
| HIGHEST DAILY MEAN | 945 | Sep 20 | 1710 |
| LOWEST DAILY MEAN | 1.1 | Oct 27 | 1.1 |
| ANNUAL SEVEN-DAY MINIMUM | 1.4 | Oct 22 | 1.4 |
| INSTANTANEOUS PEAK FLOW | | | 5030 |
| INSTANTANEOUS PEAK STAGE | | | 16.82 |
| ANNUAL RUNOFF (AC-FT) | 37370 | 30660 | 32920 |
| ANNUAL RUNOFF (CFSM) | 2.31 | 1.90 | 2.04 |
| ANNUAL RUNOFF (INCHES) | 31.43 | 25.79 | 27.69 |
| 10 PERCENT EXCEEDS | 122 | 73 | 88 |
| 50 PERCENT EXCEEDS | 8.9 | 9.8 | 11 |
| 90 PERCENT EXCEEDS | 2.6 | 3.0 | 3.7 |

e Estimated

RIO GRANDE DE LOIZA BASIN
50055750 RIO GURABO BELOW EL MANGO, PR--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORDS.-- Water years 1985 to 1986 and water year 1989 to current year.

PERIOD OF DAILY RECORD.--

SUSPENDED-SEDIMENT DISCHARGE: March 1990 to September 1993.

INSTRUMENTATION.-- DH-48 and automatic sediment sampler.

EXTREMES FOR PERIOD OF DAILY RECORD.--

SEDIMENT CONCENTRATION: Maximum daily mean, 1,000 mg/L Oct. 21, 1990; Minimum daily mean, 4 mg/L April 7, 1991.

SEDIMENT LOADS: Maximum daily mean, 7,110 tons (6,450 tonnes) Nov. 08, 1991; Minimum daily mean, 0.03 ton (0.02 tonne) May 22, 1993.

EXTREMES FOR WATER YEAR 1993.--

SEDIMENT CONCENTRATION: Maximum daily mean, 657 mg/L June 19, 1993; Minimum daily mean, 7 mg/L several days.

SEDIMENT LOADS: Maximum daily mean, 4,800 tons (4,350 tonnes) July 11, 1993; Minimum daily mean, 0.03 ton (0.02 tonne) May 22, 1993.

SEDIMENT DISCHARGE, SUSPENDED (TONS/DAY), WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993

| DAY | MEAN DISCHARGE (CFS) | MEAN CONCEN- TRATION (MG/L) | SEDIMENT DISCHARGE (TONS/DAY) | MEAN DISCHARGE (CFS) | MEAN CONCEN- TRATION (MG/L) | SEDIMENT DISCHARGE (TONS/DAY) | MEAN DISCHARGE (CFS) | MEAN CONCEN- TRATION (MG/L) | SEDIMENT DISCHARGE (TONS/DAY) |
|---------|----------------------------|--------------------------------------|-------------------------------------|----------------------------|--------------------------------------|-------------------------------------|----------------------------|--------------------------------------|-------------------------------------|
| OCTOBER | | | NOVEMBER | | | DECEMBER | | | |
| 1 | 21 | 56 | 4.4 | 4.1 | 21 | .25 | 32 | 100 | 9.2 |
| 2 | 12 | 33 | 1.5 | 2.5 | 18 | .14 | 17 | 55 | 2.6 |
| 3 | 5.1 | 22 | .30 | 24 | 57 | 7.3 | 11 | 39 | 1.2 |
| 4 | 3.6 | 19 | .19 | 122 | 180 | 75 | 17 | 52 | 3.4 |
| 5 | 3.5 | 14 | .12 | 18 | 52 | 3.4 | 10 | 37 | 1.1 |
| 6 | 16 | 41 | 5.2 | 47 | 92 | 35 | 71 | 107 | 54 |
| 7 | 8.3 | 32 | .84 | 44 | 113 | 24 | 11 | 39 | 1.3 |
| 8 | 3.7 | 22 | .23 | 6.6 | 28 | .55 | 6.0 | 30 | .48 |
| 9 | 3.3 | 22 | .20 | 8.6 | 31 | .82 | 4.5 | 27 | .34 |
| 10 | 3.0 | 21 | .17 | 59 | 85 | 25 | 4.0 | 24 | .25 |
| 11 | 2.3 | 20 | .13 | 7.5 | 35 | .86 | 3.4 | 21 | .20 |
| 12 | 2.0 | 18 | .10 | 3.7 | 21 | .20 | 3.0 | 20 | .16 |
| 13 | 1.8 | 15 | .07 | 8.9 | 33 | .96 | 2.8 | 19 | .14 |
| 14 | 1.6 | 15 | .06 | 4.4 | 23 | .27 | 2.8 | 18 | .14 |
| 15 | 1.4 | 9 | .04 | 96 | 158 | 105 | 3.2 | 18 | .15 |
| 16 | 2.0 | 15 | .10 | 100 | 232 | 112 | 2.8 | 18 | .14 |
| 17 | 3.1 | 27 | .25 | 34 | 79 | 11 | 2.6 | 18 | .13 |
| 18 | 1.6 | 23 | .10 | 301 | 282 | 434 | 2.6 | 18 | .14 |
| 19 | 1.5 | 19 | .08 | 72 | 129 | 32 | 2.7 | 17 | .13 |
| 20 | 1.8 | 15 | .08 | 16 | 50 | 2.5 | 2.5 | 15 | .11 |
| 21 | 2.5 | 12 | .08 | 15 | 48 | 2.3 | 2.2 | 14 | .09 |
| 22 | 1.6 | 11 | .05 | 134 | 195 | 84 | 3.3 | 17 | .19 |
| 23 | 1.5 | 10 | .04 | 34 | 83 | 11 | 3.6 | 20 | .23 |
| 24 | 1.4 | 10 | .04 | 10 | 53 | 1.4 | 5.9 | 25 | .50 |
| 25 | 1.7 | 11 | .05 | 9.3 | 34 | .87 | 13 | 43 | 2.1 |
| 26 | 1.5 | 11 | .05 | 7.3 | 32 | .65 | 302 | 271 | 489 |
| 27 | 1.1 | 11 | .04 | 282 | 208 | 486 | 27 | 67 | 6.9 |
| 28 | 1.2 | 13 | .05 | 666 | 469 | 1250 | 12 | 40 | 1.3 |
| 29 | 2.2 | 16 | .10 | 51 | 105 | 19 | 274 | 245 | 450 |
| 30 | 1.4 | 13 | .05 | 872 | 484 | 2270 | 515 | 395 | 900 |
| 31 | 9.7 | 33 | 2.1 | --- | --- | --- | 42 | 96 | 12 |
| TOTAL | 124.4 | --- | 16.81 | 3059.9 | --- | 4995.47 | 1411.9 | --- | 1937.62 |

RIO GRANDE DE LOIZA BASIN

50055750 RIO GURABO BELOW EL MANGO, PR--Continued

SEDIMENT DISCHARGE, SUSPENDED (TONS/DAY), WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993

| DAY | MEAN DISCHARGE (CFS) | MEAN CONCENTRATION (MG/L) | SEDIMENT DISCHARGE (TONS/DAY) | MEAN DISCHARGE (CFS) | MEAN CONCENTRATION (MG/L) | SEDIMENT DISCHARGE (TONS/DAY) | MEAN DISCHARGE (CFS) | MEAN CONCENTRATION (MG/L) | SEDIMENT DISCHARGE (TONS/DAY) |
|---------|----------------------------|---------------------------------|-------------------------------------|----------------------------|---------------------------------|-------------------------------------|----------------------------|---------------------------------|-------------------------------------|
| JANUARY | | | FEBRUARY | | | MARCH | | | |
| 1 | 27 | 68 | 5.2 | 14 | 12 | .44 | 5.5 | 11 | .16 |
| 2 | 18 | 47 | 2.5 | 31 | 48 | 9.5 | 5.4 | 10 | .14 |
| 3 | 20 | 56 | 3.1 | 28 | 96 | 8.0 | 5.2 | 11 | .15 |
| 4 | 21 | 59 | 3.6 | 15 | 47 | 2.0 | 5.1 | 15 | .20 |
| 5 | 21 | 56 | 3.3 | 11 | 26 | .82 | 5.1 | 20 | .26 |
| 6 | 33 | 77 | 7.0 | 10 | 21 | .59 | 4.9 | 21 | .27 |
| 7 | 84 | 137 | 41 | 9.8 | 20 | .51 | 4.8 | 19 | .25 |
| 8 | 48 | 100 | 15 | 9.1 | 20 | .48 | 4.8 | 16 | .20 |
| 9 | 31 | 60 | 5.1 | 8.5 | 20 | .46 | 4.8 | 12 | .15 |
| 10 | 28 | 53 | 4.2 | 8.2 | 20 | .45 | 4.8 | 10 | .13 |
| 11 | 21 | 47 | 2.7 | 7.6 | 19 | .40 | 4.6 | 9 | .11 |
| 12 | 18 | 41 | 2.0 | 10 | 34 | 1.1 | 4.9 | 7 | .09 |
| 13 | 17 | 36 | 1.6 | 13 | 36 | 1.4 | 4.6 | 7 | .10 |
| 14 | 16 | 31 | 1.3 | 8.5 | 23 | .52 | 4.6 | 12 | .15 |
| 15 | 16 | 25 | 1.1 | 8.0 | 20 | .44 | 4.6 | 27 | .34 |
| 16 | 15 | 21 | .83 | 7.6 | 18 | .37 | 4.9 | 44 | .57 |
| 17 | 15 | 20 | .82 | 7.3 | 15 | .30 | 9.0 | 45 | 1.1 |
| 18 | 13 | 21 | .75 | 8.7 | 13 | .30 | 9.9 | 31 | .78 |
| 19 | 13 | 22 | .74 | 7.1 | 12 | .23 | 6.7 | 19 | .36 |
| 20 | 12 | 23 | .74 | 6.9 | 11 | .20 | 6.2 | 14 | .24 |
| 21 | 11 | 24 | .73 | 14 | 42 | 1.8 | 6.5 | 12 | .20 |
| 22 | 14 | 39 | 2.1 | 9.8 | 27 | .77 | 4.9 | 15 | .19 |
| 23 | e33 | 61 | e7.4 | 7.3 | 20 | .39 | 4.6 | 22 | .29 |
| 24 | 13 | 21 | .77 | 7.0 | 19 | .34 | 9.1 | 33 | .87 |
| 25 | e23 | 57 | e4.8 | 6.3 | 18 | .30 | 9.0 | 33 | .82 |
| 26 | 17 | 50 | 2.4 | 6.2 | 17 | .27 | 6.1 | 27 | .47 |
| 27 | 19 | 51 | 2.8 | 6.2 | 16 | .26 | 5.5 | 18 | .28 |
| 28 | e60 | 145 | e51 | 6.1 | 14 | .22 | 5.1 | 9 | .13 |
| 29 | 269 | 268 | 318 | --- | --- | --- | 4.7 | 9 | .12 |
| 30 | 28 | 71 | 6.2 | --- | --- | --- | 4.3 | 9 | .11 |
| 31 | 22 | 35 | 2.5 | --- | --- | --- | 4.3 | 9 | .10 |
| TOTAL | 996 | --- | 501.28 | 292.2 | --- | 32.86 | 174.5 | --- | 9.33 |

e Estimated

RIO GRANDE DE LOIZA BASIN

50055750 RIO GURABO BELOW EL MANGO, PR--Continued

SEDIMENT DISCHARGE, SUSPENDED (TONS/DAY), WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993

| DAY | MEAN DISCHARGE (CFS) | MEAN CONCEN- TRATION (MG/L) | SEDIMENT DISCHARGE (TONS/DAY) | MEAN DISCHARGE (CFS) | MEAN CONCEN- TRATION (MG/L) | SEDIMENT DISCHARGE (TONS/DAY) | MEAN DISCHARGE (CFS) | MEAN CONCEN- TRATION (MG/L) | SEDIMENT DISCHARGE (TONS/DAY) |
|-------|----------------------------|--------------------------------------|-------------------------------------|----------------------------|--------------------------------------|-------------------------------------|----------------------------|--------------------------------------|-------------------------------------|
| APRIL | | | MAY | | | JUNE | | | |
| 1 | 4.3 | 8 | .10 | 134 | 172 | 165 | 8.1 | 30 | .66 |
| 2 | 4.1 | 8 | .09 | 111 | 151 | 59 | 7.5 | 49 | 1.0 |
| 3 | 3.9 | 8 | .09 | 21 | 53 | 2.7 | 7.4 | 60 | 1.2 |
| 4 | 4.2 | 10 | .11 | 12 | 39 | 1.3 | 6.8 | 62 | 1.2 |
| 5 | 4.2 | 10 | .12 | 8.6 | 21 | .50 | 6.2 | 60 | 1.0 |
| 6 | 7.2 | 11 | .21 | 8.3 | 22 | .50 | 5.6 | 58 | .87 |
| 7 | 5.3 | 8 | .14 | 7.5 | 30 | .61 | 5.0 | 53 | .72 |
| 8 | 5.3 | 8 | .14 | 6.9 | 28 | .52 | 14 | 50 | 2.4 |
| 9 | 6.5 | 10 | .17 | 140 | 171 | 175 | 35 | 79 | 9.8 |
| 10 | 5.1 | 10 | .14 | 36 | 91 | 11 | 35 | 80 | 7.7 |
| 11 | 4.2 | 8 | .11 | 12 | 48 | 1.7 | 16 | 67 | 3.2 |
| 12 | 4.4 | 7 | .09 | 7.0 | 28 | .55 | 9.8 | 58 | 1.7 |
| 13 | 23 | 49 | 6.5 | 4.5 | 21 | .27 | 82 | 111 | 82 |
| 14 | 12 | 39 | 1.3 | 5.0 | 24 | .39 | 145 | 199 | 112 |
| 15 | 9.3 | 36 | 1.1 | 6.7 | 34 | .65 | 29 | 78 | 6.6 |
| 16 | 8.1 | 31 | .70 | 3.1 | 17 | .15 | 13 | 58 | 2.2 |
| 17 | 8.8 | 43 | 1.1 | 2.3 | 14 | .09 | 9.7 | 53 | 1.4 |
| 18 | 5.0 | 24 | .34 | 3.8 | 19 | .23 | 8.6 | 55 | 1.6 |
| 19 | 17 | 52 | 4.1 | 2.3 | 14 | .08 | 1290 | 657 | 3500 |
| 20 | 9.1 | 34 | .88 | 1.4 | 13 | .04 | 417 | 363 | 629 |
| 21 | 16 | 49 | 2.5 | 1.8 | 12 | .06 | 55 | 103 | 18 |
| 22 | 7.5 | 29 | .59 | 1.3 | 9 | .03 | 33 | 77 | 6.8 |
| 23 | 15 | 46 | 2.6 | 2.8 | 15 | .18 | 24 | 63 | 4.3 |
| 24 | 67 | 116 | 56 | 2.6 | 14 | .17 | 19 | 55 | 3.0 |
| 25 | 13 | 42 | 1.7 | 5.3 | 23 | .33 | 16 | 47 | 2.0 |
| 26 | 7.7 | 30 | .65 | 4.7 | 22 | .34 | 13 | 41 | 1.4 |
| 27 | 6.3 | 27 | .46 | 40 | 67 | 18 | 12 | 33 | 1.0 |
| 28 | 8.9 | 32 | .75 | 35 | 81 | 9.3 | 11 | 22 | .63 |
| 29 | 8.3 | 22 | .53 | 14 | 45 | 1.8 | 10 | 18 | .48 |
| 30 | 30 | 67 | 10 | 11 | 35 | .99 | 18 | 54 | 2.8 |
| 31 | --- | --- | --- | 8.8 | 26 | .66 | --- | --- | --- |
| TOTAL | 330.7 | --- | 93.31 | 660.7 | --- | 452.14 | 2361.7 | --- | 4406.66 |

RIO GRANDE DE LOIZA BASIN

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50055750 RIO GURABO BELOW EL MANGO, PR--Continued

SEDIMENT DISCHARGE, SUSPENDED (TONS/DAY), WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993

| DAY | MEAN DISCHARGE (CFS) | MEAN CONCEN- TRATION (MG/L) | SEDIMENT DISCHARGE (TONS/DAY) | MEAN DISCHARGE (CFS) | MEAN CONCEN- TRATION (MG/L) | SEDIMENT DISCHARGE (TONS/DAY) | MEAN DISCHARGE (CFS) | MEAN CONCEN- TRATION (MG/L) | SEDIMENT DISCHARGE (TONS/DAY) |
|-------|----------------------------|--------------------------------------|-------------------------------------|----------------------------|--------------------------------------|-------------------------------------|----------------------------|--------------------------------------|-------------------------------------|
| JULY | | | AUGUST | | | SEPTEMBER | | | |
| 1 | 13 | 36 | 1.3 | 14 | 61 | 2.2 | 12 | 41 | 1.3 |
| 2 | 21 | 54 | 3.7 | 12 | 58 | 1.9 | 9.3 | 33 | .85 |
| 3 | 94 | 138 | 47 | 11 | 54 | 1.8 | 7.7 | 41 | .87 |
| 4 | 31 | 78 | 8.3 | 11 | 49 | 1.4 | 7.7 | 55 | 1.1 |
| 5 | 15 | 47 | 2.0 | 10 | 51 | 1.4 | 69 | 116 | 43 |
| 6 | 11 | 46 | 1.4 | 9.8 | 54 | 1.4 | 29 | 72 | 8.3 |
| 7 | 40 | 90 | 17 | 9.1 | 56 | 1.4 | 11 | 37 | 1.1 |
| 8 | 93 | 152 | 51 | 8.6 | 53 | 1.2 | 150 | 192 | 214 |
| 9 | 20 | 56 | 3.3 | 8.0 | 50 | 1.1 | 56 | 110 | 21 |
| 10 | 12 | 39 | 1.2 | 7.8 | 49 | 1.0 | 81 | 140 | 38 |
| 11 | 1710 | 640 | 4800 | 7.8 | 50 | 1.0 | 28 | 118 | 9.8 |
| 12 | 184 | 159 | 101 | 7.8 | 50 | 1.1 | 13 | 103 | 3.8 |
| 13 | 74 | 122 | 30 | 7.4 | 51 | 1.0 | 10 | 90 | 2.5 |
| 14 | 51 | 105 | 16 | 6.9 | 48 | .91 | 9.2 | 79 | 2.0 |
| 15 | 208 | 177 | 386 | 7.0 | 38 | .75 | 8.3 | 62 | 1.5 |
| 16 | 234 | 258 | 248 | 11 | 39 | 1.2 | 42 | 88 | 14 |
| 17 | 46 | 97 | 13 | 11 | 37 | 1.1 | 115 | 213 | 168 |
| 18 | 28 | 68 | 5.2 | 7.6 | 29 | .58 | 84 | 165 | 59 |
| 19 | 22 | 58 | 3.5 | 6.4 | 27 | .46 | 40 | 87 | 12 |
| 20 | 19 | 53 | 2.8 | 6.3 | 37 | .63 | 18 | 51 | 2.5 |
| 21 | 16 | 49 | 2.2 | 6.0 | 48 | .79 | 12 | 56 | 1.8 |
| 22 | 328 | 280 | 739 | 5.5 | 39 | .63 | 11 | 76 | 2.2 |
| 23 | 831 | 531 | 1600 | 25 | 64 | 5.8 | 10 | 76 | 2.1 |
| 24 | 154 | 132 | 60 | 28 | 72 | 7.7 | 9.4 | 67 | 1.7 |
| 25 | 55 | 88 | 14 | 23 | 70 | 4.9 | 11 | 57 | 1.5 |
| 26 | 107 | 153 | 76 | 10 | 37 | 1.1 | 9.9 | 40 | 1.1 |
| 27 | 62 | 125 | 23 | 7.6 | 31 | .68 | 9.8 | 30 | .85 |
| 28 | 30 | 96 | 7.7 | 7.6 | 30 | .62 | 47 | 79 | 31 |
| 29 | 21 | 85 | 4.8 | 6.7 | 29 | .55 | 24 | 64 | 5.9 |
| 30 | 17 | 45 | 1.9 | 6.5 | 27 | .48 | 225 | 312 | 432 |
| 31 | 15 | 66 | 2.6 | 9.1 | 39 | 1.0 | --- | --- | --- |
| TOTAL | 4562 | --- | 8272.9 | 315.5 | --- | 47.78 | 1169.3 | --- | 1084.77 |
| YEAR | 15458.8 | | 21850.93 | | | | | | |

RIO GRANDE DE LOIZA BASIN

50055750 RIO GURABO BELOW EL MANGO, PR--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993

PARTICLE-SIZE DISTRIBUTION OF SUSPENDED SEDIMENT

| DATE | TIME | DIS- CHARGE, INST. CUBIC FEET PER SECOND | SEDI- MENT, SUS- PENDED (MG/L) | SEDI- MENT, DIS- CHARGE, SUS- PENDED (T/DAY) | SED. SUSP. FALL DIAM. PERCENT FINER THAN .002 MM | SED. SUSP. FALL DIAM. PERCENT FINER THAN .004 MM | SED. SUSP. FALL DIAM. PERCENT FINER THAN .008 MM | |
|----------|------|---|---|--|--|--|--|--|
| | | | | | | | | |
| APR 1993 | | | | | | | | |
| 19... | 0937 | 60 | 1340 | 217 | 71 | 80 | 82 | |
| MAY | | | | | | | | |
| 01... | 2003 | 620 | 1150 | 1920 | 72 | 75 | 80 | |
| JUN | | | | | | | | |
| 19... | 0953 | 4750 | 3380 | 43300 | 43 | 50 | 51 | |
| | | | | | | | | |
| DATE | | SED. SUSP. FALL DIAM. PERCENT FINER THAN .016 MM | SED. SUSP. FALL DIAM. PERCENT FINER THAN .031 MM | SED. SUSP. SIEVE DIAM. PERCENT FINER THAN .062 MM | SED. SUSP. SIEVE DIAM. PERCENT FINER THAN .125 MM | SED. SUSP. SIEVE DIAM. PERCENT FINER THAN .250 MM | SED. SUSP. SIEVE DIAM. PERCENT FINER THAN .500 MM | SED. SUSP. SIEVE DIAM. PERCENT FINER THAN 1.00 MM |
| | | | | | | | | |
| APR 1993 | | | | | | | | |
| 19... | 86 | 91 | 98 | 98.6 | 99.2 | 99.8 | 100 | |
| MAY | | | | | | | | |
| 01... | 84 | 88 | 99.7 | 98.8 | 99.3 | 99.6 | 100 | |
| JUN | | | | | | | | |
| 19... | 63 | 73 | 83 | 90 | 94 | 97 | 99.6 | |

RIO GRANDE DE LOIZA BASIN

50055750 RIO GURABO BELOW EL MANGO--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993

SILT AND CLAY PERCENT OF SUSPENDED SEDIMENT

| DATE | TIME | STREAM- FLOW, INSTAN- TANEOUS (CFS) | SEDI- MENT, SUS- PENDE (MG/L) | SEDI- MENT, DIS- CHARGE, SUS- PENDE (T/DAY) | SED. SUSP. SIEVE DIAM. PERCENT FINER THAN .062 MM |
|----------|------|---|---|---|--|
| NOV 1992 | | | | | |
| 15... | 1313 | 351 | 1180 | 1130 | 97 |
| 16... | 1315 | 14 | 125 | 4.7 | 100 |
| 16... | 1754 | 329 | 233 | 207 | 97 |
| 16... | 2017 | 318 | 1670 | 1430 | 98 |
| 28... | 0109 | 321 | 266 | 231 | 100 |
| JAN 1993 | | | | | |
| 28... | 2326 | 174 | 1650 | 775 | 79 |
| 29... | 0436 | 344 | 246 | 228 | 97 |
| 29... | 1135 | 203 | 74 | 41 | 96 |
| APR | | | | | |
| 24... | 1256 | 534 | 627 | 907 | 96 |
| MAY | | | | | |
| 01... | 1813 | 521 | 478 | 672 | 91 |
| 02... | 0327 | 322 | 227 | 197 | 95 |
| 09... | 1607 | 754 | 848 | 1730 | 97 |
| 09... | 1857 | 382 | 422 | 435 | 97 |
| 11... | 1725 | 3.3 | 48 | 0.43 | 85 |

RIO GRANDE DE LOIZA BASIN

50056400 RIO VALENCIANO NEAR JUNCOS, PR

LOCATION.--Lat 18°12'58", long 65°55'34", Hydrologic Unit 21010005, on left bank at Highway 919, 0.5 mi (0.8 km) upstream from Quebrada Don Víctor, 1.7 mi (2.7 km) upstream from Río Gurabo and 1.0 mi (1.6 km) south of Juncos.

DRAINAGE AREA.--16.4 mi² (42.5 km²).

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--January 1971 to current year.

GAGE.--Water-stage recorder. Elevation of gage is 320 ft (98 m), from topographic map.

REMARKS.--Records poor. Minor diversion from public water supply tank, 0.5 mi upstream, during low flow. Gage-height and precipitation satellite telemetry at station.

EXTREMES OUTSIDE PERIOD OF RECORD.--Approximate discharges (no stages were recorded) of major floods are as follows: Sept. 6, 1960, 37,100 ft³/s (1,050 m³/s), Oct. 9, 1970, 18,200 ft³/s (515 m³/s).

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993
DAILY MEAN VALUES

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|-------|------|------|------|------|------|-------|-------|------|------|------|------|------|
| 1 | 29 | e17 | 73 | 92 | 22 | 18 | 8.4 | e240 | 15 | 22 | 22 | 22 |
| 2 | 23 | e18 | 49 | 58 | 47 | 19 | 8.5 | e190 | 15 | 28 | 20 | 18 |
| 3 | 21 | e44 | 50 | 45 | 36 | 18 | 9.5 | e40 | 14 | 86 | 19 | 21 |
| 4 | 20 | e27 | 81 | 49 | 23 | 18 | 8.1 | e13 | 12 | 30 | 19 | 15 |
| 5 | 19 | e50 | 48 | 36 | 22 | 18 | 7.7 | 17 | 12 | 21 | 20 | 50 |
| 6 | 20 | 99 | 45 | 37 | 20 | 18 | 8.8 | 14 | 11 | 19 | 19 | 23 |
| 7 | 20 | 48 | 34 | 72 | 20 | 20 | 7.4 | 12 | 11 | 21 | 18 | 17 |
| 8 | 19 | 24 | 30 | 44 | 19 | 19 | 7.5 | 11 | e17 | 35 | 18 | 27 |
| 9 | e19 | 23 | 29 | 40 | 19 | 19 | 9.5 | 132 | e61 | 20 | 17 | 29 |
| 10 | e19 | 24 | 26 | 35 | 18 | 19 | 7.8 | 42 | e69 | 17 | 18 | 193 |
| 11 | e18 | 20 | 25 | 29 | 19 | 20 | 7.1 | 20 | 23 | 1430 | 16 | 59 |
| 12 | e18 | 18 | 23 | 28 | 20 | 18 | 8.0 | 15 | 16 | 121 | 15 | 23 |
| 13 | e17 | 34 | 23 | 26 | e22 | 19 | 94 | 14 | 23 | 53 | 14 | 22 |
| 14 | e17 | 19 | 23 | 34 | e20 | 17 | 18 | 39 | 61 | 48 | 13 | 20 |
| 15 | e17 | 50 | 23 | 26 | e18 | 16 | 9.7 | 20 | e28 | 36 | 14 | 16 |
| 16 | e17 | 34 | 21 | 26 | e17 | 15 | 9.2 | 15 | e25 | 42 | 32 | 88 |
| 17 | e19 | 34 | 21 | 25 | 18 | 18 | e16 | 14 | e17 | 31 | 17 | 21 |
| 18 | e19 | 84 | 20 | 25 | 17 | 17 | e9.6 | 15 | e15 | 27 | 14 | 32 |
| 19 | e19 | 76 | 20 | 23 | 17 | 13 | e31 | 13 | e820 | 26 | 13 | 25 |
| 20 | e20 | 35 | 20 | 22 | 17 | 12 | e17 | 13 | e106 | 25 | 13 | 26 |
| 21 | 20 | 27 | 20 | 20 | 17 | 12 | e29 | 14 | e70 | 23 | 12 | 18 |
| 22 | 24 | 32 | 20 | 22 | 16 | 10 | e14 | 13 | e58 | 341 | 15 | 18 |
| 23 | 20 | 25 | 19 | 24 | 16 | 9.9 | e45 | 13 | e47 | 507 | 48 | 18 |
| 24 | 22 | 22 | 22 | 20 | 17 | 13 | e120 | 13 | e38 | 109 | 42 | 24 |
| 25 | e25 | 20 | 25 | 23 | 17 | 15 | e25 | 20 | e28 | 54 | 32 | 27 |
| 26 | e19 | 19 | 130 | 20 | 17 | 12 | e14 | 21 | 25 | 89 | 16 | 20 |
| 27 | 17 | 60 | 39 | 24 | 18 | 11 | e11 | 48 | 23 | 69 | 13 | 16 |
| 28 | 18 | 224 | 26 | 26 | 17 | 9.8 | e16 | 33 | 22 | 37 | 17 | 21 |
| 29 | 18 | 120 | 116 | 61 | --- | 10 | e40 | 18 | 22 | 30 | 13 | 19 |
| 30 | e20 | 1140 | 148 | 29 | --- | 9.3 | e90 | 16 | 28 | 26 | 13 | 214 |
| 31 | e23 | --- | 219 | 24 | --- | 8.3 | --- | 14 | --- | 24 | 18 | --- |
| TOTAL | 616 | 2467 | 1468 | 1065 | 566 | 471.3 | 706.8 | 1112 | 1732 | 3447 | 590 | 1142 |
| MEAN | 19.9 | 82.2 | 47.4 | 34.4 | 20.2 | 15.2 | 23.6 | 35.9 | 57.7 | 111 | 19.0 | 38.1 |
| MAX | 29 | 1140 | 219 | 92 | 47 | 20 | 120 | 240 | 820 | 1430 | 48 | 214 |
| MIN | 17 | 17 | 19 | 20 | 16 | 8.3 | 7.1 | 11 | 11 | 17 | 12 | 15 |
| AC-FT | 1220 | 4890 | 2910 | 2110 | 1120 | 935 | 1400 | 2210 | 3440 | 6840 | 1170 | 2270 |
| CFSM | 1.21 | 5.01 | 2.89 | 2.09 | 1.23 | .93 | 1.44 | 2.19 | 3.52 | 6.78 | 1.16 | 2.32 |
| IN. | 1.40 | 5.60 | 3.33 | 2.42 | 1.28 | 1.07 | 1.60 | 2.52 | 3.93 | 7.82 | 1.34 | 2.59 |

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1971 - 1993, BY WATER YEAR (WY)

| | MEAN | 79.1 | 93.7 | 58.6 | 23.6 | 17.8 | 19.4 | 15.7 | 54.0 | 50.6 | 48.9 | 62.4 | 77.7 |
|------|------|------|------|------|------|------|------|------|------|------|------|------|------|
| MAX | 293 | 461 | 550 | 77.0 | 47.9 | 39.7 | 41.7 | 268 | 188 | 163 | 231 | 255 | |
| (WY) | 1986 | 1988 | 1988 | 1992 | 1984 | 1973 | 1985 | 1985 | 1979 | 1981 | 1979 | 1979 | |
| MIN | 19.9 | 19.5 | 11.0 | 11.4 | 7.21 | 7.01 | 5.82 | 5.02 | 6.21 | 5.36 | 15.5 | 10.8 | |
| (WY) | 1993 | 1990 | 1990 | 1976 | 1974 | 1977 | 1991 | 1990 | 1977 | 1974 | 1980 | 1987 | |

| SUMMARY STATISTICS | FOR 1992 CALENDAR YEAR | FOR 1993 WATER YEAR | WATER YEARS 1971 - 1993 |
|--------------------------|------------------------|---------------------|-------------------------|
| ANNUAL TOTAL | 15999.1 | 15383.1 | |
| ANNUAL MEAN | 43.7 | 42.1 | 50.4 |
| HIGHEST ANNUAL MEAN | | | 121 |
| LOWEST ANNUAL MEAN | | | 17.1 |
| HIGHEST DAILY MEAN | 1150 | Jan 5 | 9100 |
| LOWEST DAILY MEAN | 3.4 | Apr 27 | 1.8 |
| ANNUAL SEVEN-DAY MINIMUM | 3.8 | Apr 24 | 2.6 |
| INSTANTANEOUS PEAK FLOW | | | 9460 |
| INSTANTANEOUS PEAK STAGE | | | 14.80 |
| INSTANTANEOUS LOW FLOW | | | 25.63 |
| ANNUAL RUNOFF (AC-FT) | 31730 | 30510 | 36500 |
| ANNUAL RUNOFF (CFSM) | 2.67 | 2.57 | 3.07 |
| ANNUAL RUNOFF (INCHES) | 36.29 | 34.89 | 41.75 |
| 10 PERCENT EXCEEDS | 67 | 61 | 73 |
| 50 PERCENT EXCEEDS | 18 | 20 | 19 |
| 90 PERCENT EXCEEDS | 6.4 | 13 | 7.3 |

e Estimated

RIO GRANDE DE LOIZA BASIN

50056400 RIO VALENCIANO NEAR JUNCOS, PR--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORDS.-- Water years 1983 to 1986 and water year 1989 to current year.

PERIOD OF DAILY RECORD.--

SUSPENDED-SEDIMENT DISCHARGE: October 1989 to September 1993.

INSTRUMENTATION.-- Automatic sediment sampler.

EXTREMES FOR PERIOD OF DAILY RECORD.--

SEDIMENT CONCENTRATION: Maximum daily mean, 1,600 mg/L Oct. 06, 1985; Minimum daily mean, 1 mg/L several days.

SEDIMENT LOADS: Maximum daily mean, 46,300 tons (42,000 tonnes) May 18, 1985; Minimum daily mean, 0.01 ton (0.01 tonne) several days.

EXTREMES FOR WATER YEAR 1993.--

SEDIMENT CONCENTRATION: Maximum daily mean, 1,780 mg/L July 11, 1993; Minimum daily mean, 2 mg/L several days.

SEDIMENT LOADS: Maximum daily mean, 16,200 tons (14,700 tonnes) July 11, 1993; Minimum daily mean, 0.10 ton (0.09 tonne) several days.

SEDIMENT DISCHARGE, SUSPENDED (TONS/DAY), WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993

| DAY | MEAN DISCHARGE (CFS) | MEAN CONCEN- TRATION (MG/L) | SEDIMENT DISCHARGE (TONS/DAY) | MEAN DISCHARGE (CFS) | MEAN CONCEN- TRATION (MG/L) | SEDIMENT DISCHARGE (TONS/DAY) | MEAN DISCHARGE (CFS) | MEAN CONCEN- TRATION (MG/L) | SEDIMENT DISCHARGE (TONS/DAY) |
|---------|----------------------------|--------------------------------------|-------------------------------------|----------------------------|--------------------------------------|-------------------------------------|----------------------------|--------------------------------------|-------------------------------------|
| OCTOBER | | | NOVEMBER | | | DECEMBER | | | |
| 1 | 29 | 2 | .16 | e17 | 15 | e.69 | 73 | 98 | 20 |
| 2 | 23 | 2 | .12 | e18 | 14 | e.66 | 49 | 59 | 7.9 |
| 3 | 21 | 2 | .12 | e44 | 33 | e3.9 | 50 | 61 | 9.2 |
| 4 | 20 | 2 | .10 | e27 | 26 | e1.9 | 81 | 119 | 31 |
| 5 | 19 | 2 | .10 | e50 | 62 | e8.4 | 48 | 63 | 9.0 |
| 6 | 20 | 2 | .10 | 99 | 118 | 30 | 45 | 54 | 6.9 |
| 7 | 20 | 2 | .10 | 48 | 129 | 16 | 34 | 22 | 2.1 |
| 8 | 19 | 2 | .10 | 24 | 70 | 4.7 | 30 | 11 | .89 |
| 9 | e19 | 2 | e.13 | 23 | 30 | 1.9 | 29 | 11 | .83 |
| 10 | e19 | 3 | e.16 | 24 | 23 | 1.5 | 26 | 13 | .87 |
| 11 | e18 | 3 | e.14 | 20 | 15 | .84 | 25 | 16 | 1.0 |
| 12 | e18 | 3 | e.17 | 18 | 15 | .71 | 23 | 18 | 1.1 |
| 13 | e17 | 4 | e.18 | 34 | 69 | 8.4 | 23 | 18 | 1.1 |
| 14 | e17 | 8 | e.36 | 19 | 44 | 2.3 | 23 | 17 | 1.1 |
| 15 | e17 | 13 | e.59 | 50 | 75 | 19 | 23 | 16 | .98 |
| 16 | e17 | 11 | e.50 | 34 | 37 | 3.8 | 21 | 15 | .83 |
| 17 | e19 | 7 | e.36 | 34 | 35 | 3.3 | 21 | 14 | .75 |
| 18 | e19 | 7 | e.36 | 84 | 175 | 71 | 20 | 13 | .67 |
| 19 | e19 | 7 | e.36 | 76 | 161 | 44 | 20 | 12 | .60 |
| 20 | e20 | 13 | e.84 | 35 | 34 | 3.2 | 20 | 12 | .62 |
| 21 | 20 | 18 | 1.2 | 27 | 26 | 1.9 | 20 | 12 | .68 |
| 22 | 24 | 22 | 1.6 | 32 | 35 | 3.1 | 20 | 15 | .81 |
| 23 | 20 | 15 | .81 | 25 | 29 | 2.0 | 19 | 15 | .74 |
| 24 | 22 | 13 | .89 | 22 | 23 | 1.3 | 22 | 19 | 1.1 |
| 25 | e25 | 44 | e3.0 | 20 | 15 | .82 | 25 | 37 | 2.4 |
| 26 | e19 | 26 | e1.3 | 19 | 12 | .58 | 130 | 338 | 360 |
| 27 | 17 | 21 | .96 | 60 | 72 | 35 | 39 | 45 | 5.3 |
| 28 | 18 | 21 | 1.0 | 224 | 406 | 532 | 26 | 24 | 1.6 |
| 29 | 18 | 20 | .95 | 120 | 190 | 299 | 116 | 241 | 132 |
| 30 | e20 | 19 | e1.0 | 1140 | 1340 | 13700 | 148 | 258 | 139 |
| 31 | e23 | 17 | e1.1 | --- | --- | --- | 219 | 635 | 936 |
| TOTAL | 616 | --- | 18.86 | 2467 | --- | 14801.90 | 1468 | --- | 1677.07 |

e Estimated

RIO GRANDE DE LOIZA BASIN

50056400 RIO VALENCIANO NR JUNCOS, PR--Continued

SEDIMENT DISCHARGE, SUSPENDED (TONS/DAY), WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993

| DAY | MEAN DISCHARGE (CFS) | MEAN CONCEN- TRATION (MG/L) | SEDIMENT DISCHARGE (TONS/DAY) | MEAN DISCHARGE (CFS) | MEAN CONCEN- TRATION (MG/L) | SEDIMENT DISCHARGE (TONS/DAY) | MEAN DISCHARGE (CFS) | MEAN CONCEN- TRATION (MG/L) | SEDIMENT DISCHARGE (TONS/DAY) |
|---------|----------------------------|--------------------------------------|-------------------------------------|----------------------------|--------------------------------------|-------------------------------------|----------------------------|--------------------------------------|-------------------------------------|
| JANUARY | | | FEBRUARY | | | MARCH | | | |
| 1 | 92 | 166 | 44 | 22 | 25 | 1.5 | 18 | 9 | .44 |
| 2 | 58 | 85 | 14 | 47 | 69 | 21 | 19 | 9 | .44 |
| 3 | 45 | 54 | 6.7 | 36 | 176 | 17 | 18 | 9 | .43 |
| 4 | 49 | 60 | 8.6 | 23 | 79 | 5.0 | 18 | 10 | .48 |
| 5 | 36 | 36 | 3.5 | 22 | 16 | .93 | 18 | 11 | .55 |
| 6 | 37 | 35 | 3.5 | 20 | 15 | .81 | 18 | 14 | .64 |
| 7 | 72 | 113 | 31 | 20 | 13 | .66 | 20 | 16 | .79 |
| 8 | 44 | 55 | 7.2 | 19 | 11 | .54 | 19 | 16 | .82 |
| 9 | 40 | 18 | 1.9 | 19 | 10 | .52 | 19 | 16 | .82 |
| 10 | 35 | 13 | 1.3 | 18 | 10 | .46 | 19 | 17 | .82 |
| 11 | 29 | 12 | .89 | 19 | 8 | .44 | 20 | 17 | .87 |
| 12 | 28 | 10 | .77 | 20 | 8 | .44 | 18 | 16 | .75 |
| 13 | 26 | 10 | .69 | e22 | 8 | e.51 | 19 | 14 | .75 |
| 14 | 34 | 31 | 3.4 | e20 | 10 | e.51 | 17 | 17 | .75 |
| 15 | 26 | 30 | 2.1 | e18 | 11 | e.51 | 16 | 20 | .88 |
| 16 | 26 | 21 | 1.5 | e17 | 12 | e.56 | 15 | 27 | 1.1 |
| 17 | 25 | 18 | 1.2 | 18 | 12 | .57 | 18 | 18 | 1.1 |
| 18 | 25 | 14 | .96 | 17 | 12 | .56 | 17 | 26 | 1.3 |
| 19 | 23 | 13 | .77 | 17 | 12 | .56 | 13 | 15 | .53 |
| 20 | 22 | 13 | .73 | 17 | 12 | .53 | 12 | 14 | .44 |
| 21 | 20 | 11 | .61 | 17 | 11 | .47 | 12 | 13 | .41 |
| 22 | 22 | 17 | 1.0 | 16 | 10 | .42 | 10 | 13 | .36 |
| 23 | 24 | 23 | 1.6 | 16 | 10 | .43 | 9.9 | 13 | .34 |
| 24 | 20 | 17 | .94 | 17 | 10 | .48 | 13 | 13 | .39 |
| 25 | 23 | 21 | 1.4 | 17 | 10 | .44 | 15 | 13 | .40 |
| 26 | 20 | 18 | 1.0 | 17 | 10 | .45 | 12 | 12 | .38 |
| 27 | 24 | 16 | 1.1 | 18 | 8 | .39 | 11 | 12 | .37 |
| 28 | 26 | 23 | 1.6 | 17 | 8 | .39 | 9.8 | 12 | .32 |
| 29 | 61 | 116 | 21 | --- | --- | --- | 10 | 12 | .34 |
| 30 | 29 | 91 | 7.3 | --- | --- | --- | 9.3 | 12 | .31 |
| 31 | 24 | 54 | 3.5 | --- | --- | --- | 8.3 | 12 | .28 |
| TOTAL | 1065 | --- | 175.76 | 566 | --- | 57.08 | 471.3 | --- | 18.60 |

e Estimated

RIO GRANDE DE LOIZA BASIN

277

50056400 RIO VALENCIANO NR JUNCOS, PR--Continued

SEDIMENT DISCHARGE, SUSPENDED (TONS/DAY), WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993

| DAY | MEAN DISCHARGE (CFS) | MEAN CONCENTRATION (MG/L) | SEDIMENT DISCHARGE (TONS/DAY) | MEAN DISCHARGE (CFS) | MEAN CONCENTRATION (MG/L) | SEDIMENT DISCHARGE (TONS/DAY) | MEAN DISCHARGE (CFS) | MEAN CONCENTRATION (MG/L) | SEDIMENT DISCHARGE (TONS/DAY) |
|-------|----------------------------|---------------------------------|-------------------------------------|----------------------------|---------------------------------|-------------------------------------|----------------------------|---------------------------------|-------------------------------------|
| APRIL | | | MAY | | | JUNE | | | |
| 1 | 8.4 | 12 | .27 | e240 | 446 | e289 | 15 | 8 | .31 |
| 2 | 8.5 | 12 | .27 | e190 | 334 | e171 | 15 | 7 | .32 |
| 3 | 9.5 | 12 | .30 | e40 | 45 | e4.9 | 14 | 6 | .25 |
| 4 | 8.1 | 12 | .26 | e13 | 10 | e.34 | 12 | 7 | .26 |
| 5 | 7.7 | 12 | .25 | 17 | 18 | .87 | 12 | 10 | .33 |
| 6 | 8.8 | 11 | .26 | 14 | 28 | 1.0 | 11 | 12 | .37 |
| 7 | 7.4 | 10 | .20 | 12 | 22 | .73 | 11 | 14 | .43 |
| 8 | 7.5 | 9 | .18 | 11 | 13 | .41 | e17 | 17 | e.78 |
| 9 | 9.5 | 9 | .24 | 132 | 237 | 291 | e61 | 93 | e41 |
| 10 | 7.8 | 9 | .18 | 42 | 75 | 12 | e69 | 101 | e27 |
| 11 | 7.1 | 9 | .18 | 20 | 27 | 1.4 | 23 | 20 | 1.2 |
| 12 | 8.0 | 9 | .20 | 15 | 16 | .77 | 16 | 14 | .61 |
| 13 | 94 | 353 | 298 | 14 | 14 | .51 | 23 | 19 | 1.3 |
| 14 | 18 | 28 | 1.8 | 39 | 98 | 17 | 61 | 121 | 30 |
| 15 | 9.7 | 8 | .21 | 20 | 91 | 5.0 | e28 | 30 | e2.5 |
| 16 | 9.2 | 6 | .20 | 15 | 34 | 1.4 | e25 | 26 | e1.8 |
| 17 | e16 | 13 | e.88 | 14 | 16 | .60 | e17 | 20 | e.93 |
| 18 | e9.6 | 6 | e.16 | 15 | 6 | .25 | e15 | 16 | e.67 |
| 19 | e31 | 31 | e2.6 | 13 | 6 | .22 | e820 | 1100 | e4560 |
| 20 | e17 | 13 | e.60 | 13 | 6 | .21 | e106 | 162 | e54 |
| 21 | e29 | 28 | e2.2 | 14 | 6 | .26 | e70 | 54 | e11 |
| 22 | e14 | 10 | e.38 | 13 | 9 | .33 | e58 | 45 | e7.1 |
| 23 | e45 | 53 | e6.4 | 13 | 10 | .36 | e47 | 40 | e5.1 |
| 24 | e120 | 188 | e61 | 13 | 10 | .37 | e38 | 37 | e3.8 |
| 25 | e25 | 23 | e1.6 | 20 | 19 | 1.3 | e28 | 31 | e2.4 |
| 26 | e14 | 10 | e.38 | 21 | 27 | 1.7 | 25 | 24 | 1.6 |
| 27 | e11 | 7 | e.20 | 48 | 37 | 9.3 | 23 | 18 | 1.1 |
| 28 | e16 | 12 | e.52 | 33 | 39 | 4.1 | 22 | 10 | .62 |
| 29 | e40 | 45 | e4.9 | 18 | 17 | .84 | 22 | 3 | .19 |
| 30 | e90 | 131 | e32 | 16 | 14 | .59 | 28 | 20 | 1.7 |
| 31 | --- | --- | --- | 14 | 10 | .37 | --- | --- | --- |
| TOTAL | 706.8 | --- | 416.82 | 1112 | --- | 818.13 | 1732 | --- | 4758.67 |

e Estimated

RIO GRANDE DE LOIZA BASIN

50056400 RIO VALENCIANO NR JUNCOS, PR--Continued

SEDIMENT DISCHARGE, SUSPENDED (TONS/DAY), WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993

| DAY | MEAN DISCHARGE (CFS) | MEAN CONCEN- TRATION (MG/L) | SEDIMENT DISCHARGE (TONS/DAY) | MEAN DISCHARGE (CFS) | MEAN CONCEN- TRATION (MG/L) | SEDIMENT DISCHARGE (TONS/DAY) | MEAN DISCHARGE (CFS) | MEAN CONCEN- TRATION (MG/L) | SEDIMENT DISCHARGE (TONS/DAY) |
|-------|----------------------------|--------------------------------------|-------------------------------------|----------------------------|--------------------------------------|-------------------------------------|----------------------------|--------------------------------------|-------------------------------------|
| JULY | | | AUGUST | | | SEPTEMBER | | | |
| 1 | 22 | 19 | 1.1 | 22 | 8 | .50 | 22 | 19 | 1.2 |
| 2 | 28 | 29 | 2.6 | 20 | 7 | .38 | 18 | 15 | .90 |
| 3 | 86 | 130 | 46 | 19 | 7 | .35 | 21 | 18 | 1.1 |
| 4 | 30 | 33 | 3.0 | 19 | 7 | .34 | 15 | 11 | .45 |
| 5 | 21 | 18 | 1.0 | 20 | 6 | .29 | 50 | 65 | 15 |
| 6 | 19 | 12 | .57 | 19 | 4 | .22 | 23 | 23 | 1.6 |
| 7 | 21 | 6 | .36 | 18 | 3 | .16 | 17 | 13 | .61 |
| 8 | 35 | 35 | 3.7 | 18 | 3 | .13 | 27 | 27 | 3.3 |
| 9 | 20 | 17 | .91 | 17 | 3 | .12 | 29 | 31 | 3.1 |
| 10 | 17 | 14 | .66 | 18 | 3 | .16 | 193 | 367 | 486 |
| 11 | 1430 | 1780 | 16200 | 16 | 3 | .14 | 59 | 118 | 28 |
| 12 | 121 | 153 | 69 | 15 | 4 | .17 | 23 | 20 | 1.3 |
| 13 | 53 | 54 | 7.9 | 14 | 4 | .16 | 22 | 19 | 1.2 |
| 14 | 48 | 55 | 7.1 | 13 | 4 | .16 | 20 | 17 | 1.0 |
| 15 | 36 | 39 | 3.8 | 14 | 5 | .20 | 16 | 12 | .53 |
| 16 | 42 | 33 | 4.1 | 32 | 32 | 3.3 | 88 | 311 | 175 |
| 17 | 31 | 16 | 1.3 | 17 | 15 | .75 | 21 | 19 | 1.2 |
| 18 | 27 | 16 | 1.1 | 14 | 14 | .51 | 32 | 36 | 5.3 |
| 19 | 26 | 17 | 1.2 | 13 | 13 | .46 | 25 | 25 | 2.1 |
| 20 | 25 | 17 | 1.1 | 13 | 12 | .41 | 26 | 22 | 1.8 |
| 21 | 23 | 18 | 1.0 | 12 | 12 | .37 | 18 | 15 | .72 |
| 22 | 341 | 756 | 1970 | 15 | 14 | 1.0 | 18 | 10 | .50 |
| 23 | 507 | 934 | 2180 | 48 | 100 | 14 | 18 | 10 | .56 |
| 24 | 109 | 140 | 45 | 42 | 82 | 11 | 24 | 103 | 6.9 |
| 25 | 54 | 69 | 11 | 32 | 57 | 5.7 | 27 | 73 | 5.3 |
| 26 | 89 | 135 | 59 | 16 | 12 | .55 | 20 | 17 | 1.0 |
| 27 | 69 | 115 | 25 | 13 | 10 | .35 | 16 | 11 | .47 |
| 28 | 37 | 37 | 3.9 | 17 | 12 | .62 | 21 | 21 | 1.4 |
| 29 | 30 | 18 | 1.4 | 13 | 9 | .32 | 19 | 12 | .65 |
| 30 | 26 | 14 | .90 | 13 | 8 | .29 | 214 | 376 | 920 |
| 31 | 24 | 11 | .68 | 18 | 8 | .37 | --- | --- | --- |
| TOTAL | 3447 | --- | 20654.38 | 590 | --- | 43.48 | 1142 | --- | 1668.19 |
| YEAR | 15383.1 | | 45108.94 | | | | | | |

RIO GRANDE DE LOIZA BASIN

50056400 RIO VALENCIANO NEAR JUNCOS, PR--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993

PARTICLE-SIZE DISTRIBUTION OF SUSPENDED SEDIMENT

| DATE | TIME | DIS- CHARGE, INST. CUBIC FEET PER SECOND | SEDI- MENT, DIS- CHARGE, SUS- PENDED (MG/L) | SEDI- MENT, DIS- CHARGE, SUS- PENDED (T/DAY) | SED. SUSP. FALL DIAM. PERCENT FINER THAN .002 MM | SED. SUSP. FALL DIAM. PERCENT FINER THAN .004 MM | SED. SUSP. FALL DIAM. PERCENT FINER THAN .008 MM |
|----------|------|--|---|--|---|---|---|
| DEC 1992 | | | | | | | |
| 26... | 1435 | 464 | 4020 | 504 | 44 | 55 | 61 |
| 31... | 0735 | 803 | 7450 | 16200 | 37 | 43 | 51 |
| APR 1993 | | | | | | | |
| 13... | 1515 | 446 | 1640 | 1970 | 54 | 64 | 70 |
| JUN | | | | | | | |
| 19... | 0900 | 3400 | 8990 | 82500 | 36 | 42 | 49 |
| JUL | | | | | | | |
| 22... | 1810 | 597 | 7540 | 12200 | 38 | 43 | 49 |

| DATE | SED. SUSP. FALL DIAM. PERCENT FINER THAN .016 MM | SED. SUSP. FALL DIAM. PERCENT FINER THAN .031 MM | SED. SUSP. SIEVE DIAM. PERCENT FINER THAN .062 MM | SED. SUSP. SIEVE DIAM. PERCENT FINER THAN .125 MM | SED. SUSP. SIEVE DIAM. PERCENT FINER THAN .250 MM | SED. SUSP. SIEVE DIAM. PERCENT FINER THAN .500 MM | SED. SUSP. SIEVE DIAM. PERCENT FINER THAN 1.00 MM |
|----------|---|---|--|--|--|--|--|
| DEC 1992 | | | | | | | |
| 26... | 74 | 81 | 94 | 98 | 99 | 99.7 | 99.9 |
| 31... | 64 | 77 | 91 | 96 | 98 | 99.2 | 99.7 |
| APR 1993 | | | | | | | |
| 13... | 79 | 80 | 92 | 97 | 99 | 99.8 | 99.9 |
| JUN | | | | | | | |
| 19... | 64 | 76 | 88 | 94 | 97 | 98 | 99.5 |
| JUL | | | | | | | |
| 22... | 56 | 69 | 86 | 96 | 99 | 99.6 | 99.9 |

RIO GRANDE DE LOIZA BASIN

50056400 RIO VALENCIANO NEAR JUNCOS, PR--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993

SILT AND CLAY PERCENT OF SUSPENDED SEDIMENT

| DATE | TIME | STREAM- FLOW, INSTAN- TANEOUS (CFS) | SEDI- MENT, SUS- PENDE (MG/L) | SEDI- MENT, DIS- CHARGE, SUS- PENDE (T/DAY) | SED. SUSP. SIEVE DIAM. PERCENT FINER THAN .062 MM |
|----------|------|---|---|---|--|
| OCT 1992 | | | | | |
| 20... | 1656 | 21 | 958 | 54 | 100 |
| NOV | | | | | |
| 18... | 1945 | 188 | 342 | 173 | 90 |
| 19... | 0105 | 197 | 374 | 199 | 98 |
| 27... | 2000 | 214 | 383 | 221 | 97 |
| 27... | 2220 | 235 | 341 | 216 | 98 |
| DEC | | | | | |
| 26... | 1415 | 212 | 6210 | 3550 | 77 |
| 29... | 1007 | 110 | 361 | 107 | 92 |
| 31... | 0705 | 256 | 1240 | 857 | 97 |
| 31... | 1225 | 238 | 679 | 436 | 99 |
| FEB 1993 | | | | | |
| 03... | 1650 | 28 | 162 | 12 | 96 |
| ABR | | | | | |
| 13... | 1600 | 585 | 1510 | 2380 | 95 |
| 13... | 1740 | 285 | 1320 | 1010 | 99 |
| MAY | | | | | |
| 09... | 1630 | 933 | 1550 | 3900 | 95 |
| 15... | 0737 | 20 | 104 | 5.6 | 97 |
| JUL | | | | | |
| 03... | 1513 | 163 | 575 | 253 | 99 |
| 22... | 2130 | 686 | 998 | 1850 | 94 |

RIO GRANDE DE LOIZA BASIN

281

50057000 RIO GURABO AT GURABO, PR

LOCATION.--Lat 18°15'30", long 65°58'05", Hydrologic Unit 21010005, on left bank, at bridge on Highway 181, 0.3 mi (0.5 km) east of Gurabo, and 4.5 mi (7.6 km) upstream from Río Grande de Loíza.

DRAINAGE AREA.--60.2 mi² (155.9 km²).

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--1958 (occasional low-flow measurements only), January to September 1959 (monthly measurements only), October 1959 to current year.

GAGE.--Water-stage recorder and crest-stage gage. Datum of gage is 131.58 ft (40.106 m) above mean sea level. Prior to Oct. 1, 1989 datum 5.0 ft (1.5 m) higher.

REMARKS.--Records fair except those for estimated daily discharges, which are poor. Gage-height and precipitation satellite telemetry at station. Minimum daily discharge used due to temporary regulation of flow during construction of pond upstream from station by A.A.A.

EXTREMES OUTSIDE PERIOD OF RECORD.--Approximate elevation to gage datum of the Aug. 4, 1945 flood, as pointed out by local residents, 26.6 ft (8.1 m), datum then is use.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993
DAILY MEAN VALUES

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|-------|------|-------|------|------|------|------|------|------|------|-------|------|------|
| 1 | 52 | 81 | 226 | 184 | 46 | e32 | e26 | e450 | 24 | 46 | 57 | 45 |
| 2 | 45 | 61 | 151 | 125 | 53 | e30 | e25 | e400 | e25 | 64 | 54 | 37 |
| 3 | 26 | 86 | 124 | 113 | 114 | e30 | e24 | e26 | e25 | 196 | 50 | 37 |
| 4 | 21 | 202 | 154 | 106 | 58 | e30 | e25 | e34 | e23 | 93 | 46 | 27 |
| 5 | 20 | 136 | 128 | 85 | 48 | e30 | e25 | e23 | e20 | 48 | 45 | 74 |
| 6 | 31 | 121 | 144 | 96 | 42 | e28 | e43 | e21 | e20 | 37 | 45 | 88 |
| 7 | 81 | 180 | 112 | 134 | 39 | e28 | e33 | e21 | e19 | 46 | 40 | 38 |
| 8 | 44 | 88 | 87 | 144 | 41 | e30 | e33 | e240 | e20 | 126 | 38 | 118 |
| 9 | 46 | 76 | 78 | 91 | 43 | e30 | e39 | e60 | e74 | 74 | 36 | 125 |
| 10 | 36 | 177 | 71 | 85 | 40 | e30 | e34 | e40 | 121 | 41 | 36 | 156 |
| 11 | 37 | 93 | 67 | 71 | 40 | e29 | e26 | e27 | 59 | 6200 | 34 | 136 |
| 12 | 31 | 70 | 63 | 66 | 47 | e30 | e27 | e50 | 32 | 428 | 34 | 48 |
| 13 | 27 | 92 | 60 | 60 | 54 | e29 | 100 | e76 | 36 | 144 | 30 | 35 |
| 14 | 29 | 73 | 62 | 62 | 43 | e29 | 91 | e40 | 216 | 117 | 29 | 36 |
| 15 | 29 | 130 | 64 | 60 | 36 | e29 | 115 | e27 | 99 | 104 | 31 | 30 |
| 16 | 30 | 167 | 60 | 54 | 35 | e30 | 62 | e29 | 64 | 334 | 57 | 92 |
| 17 | 40 | 205 | 59 | 56 | e35 | e56 | 48 | e25 | 37 | 106 | 48 | 112 |
| 18 | 61 | 515 | 57 | 50 | e35 | e60 | 29 | e25 | 29 | 80 | 33 | 138 |
| 19 | 59 | 271 | 55 | 46 | e36 | e40 | 78 | e27 | 2030 | 69 | 29 | 114 |
| 20 | 71 | 147 | 51 | 45 | e33 | e38 | 60 | e25 | 991 | 67 | 28 | 117 |
| 21 | 62 | 120 | 50 | 40 | e33 | e40 | 56 | e25 | 157 | 57 | 27 | 63 |
| 22 | 60 | 173 | 52 | 43 | e34 | e30 | 35 | e25 | 105 | 681 | 58 | 42 |
| 23 | 50 | 146 | 54 | 68 | e32 | e28 | 39 | e30 | 80 | 1390 | 94 | 41 |
| 24 | 51 | 93 | 53 | 44 | e32 | e56 | 115 | 36 | 69 | 335 | 80 | 46 |
| 25 | 73 | 85 | 72 | 44 | e32 | e54 | 77 | 43 | 58 | 149 | 80 | 38 |
| 26 | 55 | 76 | 481 | 51 | e33 | e36 | 39 | 70 | 51 | 159 | 52 | 57 |
| 27 | 50 | 240 | 169 | 39 | e32 | e33 | e25 | 86 | 47 | 165 | 45 | 40 |
| 28 | 47 | 985 | 85 | 69 | e32 | e30 | e70 | 127 | 43 | 94 | 37 | 51 |
| 29 | 66 | 213 | 269 | 360 | --- | e28 | e130 | 48 | 31 | 76 | 31 | 103 |
| 30 | 55 | 2230 | 763 | 84 | --- | e26 | e250 | 31 | 57 | 67 | 28 | 378 |
| 31 | 70 | --- | 379 | 58 | --- | e26 | --- | 25 | --- | 62 | 34 | --- |
| TOTAL | 1455 | 7332 | 4300 | 2633 | 1178 | 1055 | 1779 | 2212 | 4662 | 11655 | 1366 | 2462 |
| MEAN | 46.9 | 244 | 139 | 84.9 | 42.1 | 34.0 | 59.3 | 71.4 | 155 | 376 | 44.1 | 82.1 |
| MAX | 81 | 2230 | 763 | 360 | 114 | 60 | 250 | 450 | 2030 | 6200 | 94 | 378 |
| MIN | 20 | 61 | 50 | 39 | 32 | 26 | 24 | 21 | 19 | 37 | 27 | 27 |
| AC-FT | 2890 | 14540 | 8530 | 5220 | 2340 | 2090 | 3530 | 4390 | 9250 | 23120 | 2710 | 4880 |
| CFSM | .78 | 4.06 | 2.30 | 1.41 | .70 | .57 | .99 | 1.19 | 2.58 | 6.25 | .73 | 1.36 |
| IN. | .90 | 4.53 | 2.66 | 1.63 | .73 | .65 | 1.10 | 1.37 | 2.88 | 7.20 | .84 | 1.52 |

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1960 - 1993, BY WATER YEAR (WY)

| | MEAN | 204 | 209 | 163 | 63.4 | 46.2 | 39.9 | 42.8 | 152 | 137 | 125 | 173 | 224 |
|------|------|------|------|------|------|------|------|------|------|------|------|------|-----|
| MAX | 1414 | 1045 | 863 | 204 | 131 | 97.5 | 93.9 | 746 | 468 | 376 | 610 | 1225 | |
| (WY) | 1971 | 1988 | 1988 | 1992 | 1989 | 1985 | 1985 | 1985 | 1970 | 1993 | 1979 | 1960 | |
| MIN | 16.0 | 37.3 | 10.7 | 16.4 | 12.6 | 11.2 | 15.8 | 12.7 | 16.8 | 20.9 | 24.8 | 8.76 | |
| (WY) | 1968 | 1974 | 1968 | 1968 | 1968 | 1965 | 1967 | 1990 | 1972 | 1967 | 1967 | 1967 | |

SUMMARY STATISTICS

FOR 1992 CALENDAR YEAR

FOR 1993 WATER YEAR

WATER YEARS 1960 - 1993

| | | | |
|--------------------------|---------|--------|------------------|
| ANNUAL TOTAL | 44901.0 | 42089 | |
| ANNUAL MEAN | 123 | 115 | 133 |
| HIGHEST ANNUAL MEAN | | | 286 |
| LOWEST ANNUAL MEAN | | | 42.2 |
| HIGHEST DAILY MEAN | 2470 | Jan 6 | 6200 Jul 11 |
| LOWEST DAILY MEAN | 7.3 | Apr 29 | 19 Jun 7 |
| ANNUAL SEVEN-DAY MINIMUM | 12 | Apr 24 | 22 Jun 2 |
| INSTANTANEOUS PEAK FLOW | | | 17200 Jul 11 |
| INSTANTANEOUS PEAK STAGE | | | 23.77 Jul 11 |
| INSTANTANEOUS LOW FLOW | | | 27.70 Sep 6 1960 |
| ANNUAL RUNOFF (AC-FT) | 89060 | 83480 | 96680 |
| ANNUAL RUNOFF (CFSM) | 2.04 | 1.92 | 2.22 |
| ANNUAL RUNOFF (INCHES) | 27.75 | 26.01 | 30.12 |
| 10 PERCENT EXCEEDS | 227 | 161 | 213 |
| 50 PERCENT EXCEEDS | 50 | 52 | 50 |
| 90 PERCENT EXCEEDS | 21 | 27 | 19 |

RIO GRANDE DE LOIZA BASIN
50057025 RIO GURABO NEAR GURABO, PR

WATER-QUALITY RECORDS

LOCATION.--Lat 18°15'56", long 65°59'04", at bridge on Highway 941, 1.2 mi (1.9 km) west-northwest from gaging station 50057000, and 1.0 mi (1.6 km) northwest of Gurabo plaza.

DRAINAGE AREA.--62.8 mi² (162.7 km²).

PERIOD OF RECORD.--Water years 1979 to current year.

WATER-QUALITY DATA, WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993

| DATE | TIME | SPE- CIFIC CON- DUCT- ANCE (US/CM) | PH WATER WHOLE FIELD (STAND- ARD UNITS) | TEMPER- ATURE WATER (DEG C) | TUR- BID- ITY (NTU) | OXYGEN, DIS- SOLVED (MG/L) | OXYGEN, DIS- SOLVED (PER- CENT SATUR- ATION) | OXYGEN DEMAND, CHEM- ICAL (HIGH LEVEL) (MG/L) | COLI- FORM, FECAL, 0.45 UM-MP (COLS./ 100 ML) | STREP- TOCOCCI FECAL, (COLS. PER 100 ML) |
|----------|------|---|---|--------------------------------------|------------------------------|-------------------------------------|--|---|---|---|
| OCT 1992 | | | | | | | | | | |
| 07... | 1030 | 300 | 7.2 | 29.0 | 26 | 3.5 | 45 | 17 | 20000 | 2100 |
| DEC | | | | | | | | | | |
| 04... | 0900 | 299 | 6.9 | 25.7 | 6.3 | 4.1 | 51 | 13 | 4500 | 550 |
| FEB 1993 | | | | | | | | | | |
| 10... | 1310 | 403 | 7.6 | 27.0 | 11 | 4.8 | 60 | 21 | 20000 | 380 |
| APR | | | | | | | | | | |
| 12... | 1030 | 285 | 7.2 | 27.5 | 14 | 2.8 | 35 | 19 | K6500 | 21000 |
| MAY | | | | | | | | | | |
| 25... | 1145 | 414 | 7.1 | 29.2 | 8.7 | 1.7 | 21 | 24 | 2300 | K180 |
| AUG | | | | | | | | | | |
| 05... | 0800 | 390 | 7.0 | 28.6 | 1.0 | 4.5 | 57 | 15 | K900 | 200 |

| DATE | HARD- NESS TOTAL (MG/L AS CaCO3) | HARD- NESS NONCARB WH WAT TOT FLD MG/L AS CaCO3 | CALCIUM DIS- SOLVED (MG/L AS Ca) | MAGNE- SIUM, DIS- SOLVED (MG/L AS Mg) | SODIUM, DIS- SOLVED (MG/L AS Na) | SODIUM AD- SORP- TION RATIO | POTAS- SIUM, DIS- SOLVED (MG/L AS K) | ALKA- LITY WAT WH TOT FET MG/L AS CaCO3 | SULFIDE TOTAL (MG/L AS S) | SULFATE DIS- SOLVED (MG/L AS SO4) | CHLO- RIDE, DIS- SOLVED (MG/L AS Cl) |
|----------|---|---|--|--|--|---|---|--|------------------------------------|---|---|
| OCT 1992 | | | | | | | | | | | |
| 07... | 44 | 0 | 26 | 12 | 32 | 2 | 3.9 | 120 | 0.6 | 13 | 28 |
| DEC | | | | | | | | | | | |
| 04... | -- | -- | -- | -- | -- | -- | -- | 130 | -- | -- | -- |
| FEB 1993 | | | | | | | | | | | |
| 10... | -- | -- | -- | -- | -- | -- | -- | 130 | -- | -- | -- |
| APR | | | | | | | | | | | |
| 12... | 140 | 7 | 31 | 15 | 36 | 1 | 4.6 | 140 | <0.5 | 21 | 38 |
| MAY | | | | | | | | | | | |
| 25... | -- | -- | -- | -- | -- | -- | -- | 140 | -- | -- | -- |
| AUG | | | | | | | | | | | |
| 05... | 130 | 4 | 30 | 13 | 30 | 1 | 4.2 | 140 | -- | 19 | 27 |

| DATE | FLUO- RIDE, DIS- SOLVED (MG/L AS F) | SILICA, DIS- SOLVED (MG/L AS SiO2) | SOLIDS, SUM OF CONSTITU- ENTS, DIS- SOLVED (MG/L) | SOLIDS, DIS- SOLVED (TONS PER DAY) | RESIDUE TOTAL AT 105 DEG. C, SUS- PENDED (MG/L) | NITRO- GEN, NITRATE TOTAL (MG/L AS N) | NITRO- GEN, NITRITE TOTAL (MG/L AS N) | NITRO- GEN, NO2+NO3 TOTAL (MG/L AS N) | NITRO- GEN, AMMONIA TOTAL (MG/L AS N) | NITRO- GEN, ORGANIC TOTAL (MG/L AS N) |
|----------|--|---|---|---|---|--|--|--|--|--|
| OCT 1992 | | | | | | | | | | |
| 07... | <0.10 | 14 | 93 | 75 | 36 | 0.750 | 0.050 | 0.800 | 0.180 | 0.42 |
| DEC | | | | | | | | | | |
| 04... | -- | -- | -- | -- | 14 | 0.440 | 0.060 | 0.500 | 0.670 | 0.23 |
| FEB 1993 | | | | | | | | | | |
| 10... | -- | -- | -- | -- | 19 | 0.250 | 0.150 | 0.400 | 0.360 | 1.7 |
| APR | | | | | | | | | | |
| 12... | 0.20 | 35 | 265 | 204 | 26 | 1.30 | 0.100 | 1.40 | 0.540 | 0.26 |
| MAY | | | | | | | | | | |
| 25... | -- | -- | -- | -- | 22 | 0.750 | 0.050 | 0.800 | 0.610 | 0.69 |
| AUG | | | | | | | | | | |
| 05... | 0.20 | 31 | 234 | 246 | 3 | 0.440 | 0.060 | 0.500 | 0.670 | 0.23 |

K = non-ideal count

WATER-QUALITY DATA, WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993

[illegible]

RIO GRANDE DE LOIZA BASIN

50058350 RIO CAÑAS AT RIO CAÑAS, PR

LOCATION.--Lat 18°17'41", long 66°02'44", Hydrologic Unit 21010005, at right bank, off road 798, upstream side of bridge on Highway 52, .5 mi (.8 km) northeast from Escuela Segunda Unidad de Francisco Valdés, and .8 mi (1.3 km) north of La Barra.

DRAINAGE AREA.--7.53 mi² (19.50 km²).

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--March 1990 to current year.

GAGE.--Water-stage recorder and crest-stage gage. Elevation of gage is 164 ft (50 m), from topographic map.

REMARKS.--Records fair except those for estimated daily discharges, which are poor. Gage-height and precipitation satellite telemetry at station.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993
DAILY MEAN VALUES

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|-------|-------|--------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| 1 | 3.5 | 4.2 | 44 | 16 | 9.1 | 4.3 | 3.3 | 53 | 9.8 | 4.9 | 4.9 | 2.9 |
| 2 | 2.8 | 2.6 | 30 | 17 | 9.1 | 4.8 | 3.8 | 67 | 9.8 | 5.5 | 4.1 | 2.9 |
| 3 | 2.7 | 6.9 | 23 | 13 | 12 | 4.9 | 3.8 | 9.0 | 7.4 | 6.8 | 4.1 | 3.0 |
| 4 | 2.7 | 77 | 20 | 9.1 | 7.9 | 4.9 | 3.8 | 4.4 | 6.2 | 5.1 | 4.1 | 7.4 |
| 5 | 6.8 | 17 | 14 | 18 | 7.8 | 4.9 | 3.8 | 14 | 6.2 | 3.9 | 4.1 | 5.6 |
| 6 | 8.3 | 6.2 | 12 | 16 | 7.8 | 4.9 | 3.5 | 5.4 | 6.2 | 3.8 | 4.0 | 17 |
| 7 | 4.2 | 4.6 | 9.8 | 25 | 7.2 | 4.9 | 3.6 | 4.5 | 6.2 | 99 | 3.7 | 4.6 |
| 8 | 47 | 4.1 | 9.4 | 13 | 7.1 | 4.7 | 36 | 7.0 | 27 | 41 | 3.5 | 2.9 |
| 9 | 24 | 4.6 | 9.2 | 8.5 | 6.7 | 4.4 | 16 | 15 | 68 | 33 | 16 | 3.3 |
| 10 | 153 | 4.1 | 8.1 | 7.6 | 7.2 | 4.0 | 6.8 | 8.2 | 30 | 31 | 4.2 | 2.8 |
| 11 | 39 | 2.9 | 7.2 | 6.7 | 7.3 | 3.8 | 18 | 5.8 | 15 | 236 | 3.4 | 8.1 |
| 12 | 9.8 | 3.4 | 6.2 | 7.2 | 9.0 | 3.8 | 15 | 4.0 | 11 | 48 | 4.1 | 2.9 |
| 13 | 6.0 | 5.4 | 5.9 | 7.2 | 8.8 | 3.7 | 37 | 3.2 | 10 | 18 | 3.7 | 2.8 |
| 14 | 23 | 14 | 43 | 7.2 | 7.8 | 3.5 | 11 | 55 | 38 | 12 | 3.6 | 2.8 |
| 15 | 6.8 | 5.8 | 28 | 6.7 | 8.5 | 3.5 | 6.3 | 12 | 26 | 12 | 3.4 | 3.4 |
| 16 | 5.7 | 3.6 | 6.9 | 6.7 | 26 | 4.9 | 6.3 | 7.7 | 15 | 9.4 | 19 | 3.9 |
| 17 | 6.2 | 9.7 | 8.4 | 7.1 | 9.6 | 4.5 | 4.3 | 5.9 | 6.3 | 7.0 | 4.6 | 2.9 |
| 18 | 43 | 32 | 8.8 | 6.1 | 7.4 | 4.4 | 3.7 | 5.5 | 7.1 | 7.9 | 3.9 | 47 |
| 19 | 16 | 8.0 | 13 | 5.7 | 7.4 | 4.0 | 3.5 | 5.2 | 134 | 6.7 | 3.5 | 17 |
| 20 | 6.2 | 25 | 7.8 | 6.2 | 7.2 | 3.8 | 27 | 5.4 | 70 | 5.3 | 3.4 | 34 |
| 21 | 5.1 | 9.0 | 7.3 | 6.2 | 7.2 | 3.7 | 14 | 5.7 | 22 | 5.2 | 3.2 | e3.5 |
| 22 | 7.5 | 61 | 19 | 18 | 6.6 | 3.5 | 7.7 | 5.6 | 11 | 16 | 6.1 | e3.0 |
| 23 | 3.6 | 9.9 | 8.5 | 13 | 5.3 | 3.9 | 5.8 | 11 | 8.2 | 48 | 5.3 | e4.2 |
| 24 | 4.4 | 19 | 39 | 8.4 | 5.3 | 9.4 | 4.7 | 6.2 | 6.4 | 36 | 3.4 | e3.2 |
| 25 | 3.7 | 3.9 | 38 | 13 | 5.2 | 5.8 | 4.0 | 7.0 | 5.5 | 15 | 3.2 | e3.0 |
| 26 | 2.7 | 3.6 | 215 | 9.1 | 4.9 | 5.5 | 5.1 | 81 | 4.9 | 21 | 4.4 | e3.1 |
| 27 | 2.6 | 257 | 60 | 8.7 | 4.9 | 5.9 | 18 | 42 | 4.9 | 12 | 6.3 | e2.9 |
| 28 | 2.5 | 252 | 74 | 8.2 | 4.5 | 4.8 | 14 | 57 | 11 | 7.3 | 4.2 | e5.8 |
| 29 | 2.2 | 67 | 67 | 12 | --- | 4.1 | 29 | 19 | 12 | 6.0 | 3.3 | 11 |
| 30 | 3.7 | 162 | 42 | 8.5 | --- | 3.8 | 15 | 12 | 6.4 | 5.3 | 3.2 | 20 |
| 31 | 7.2 | --- | 42 | 8.8 | --- | 3.1 | --- | 10 | --- | 5.3 | 3.1 | --- |
| TOTAL | 461.9 | 1085.5 | 926.5 | 323.9 | 224.8 | 140.1 | 333.8 | 553.7 | 601.5 | 773.4 | 151.0 | 236.9 |
| MEAN | 14.9 | 36.2 | 29.9 | 10.4 | 8.03 | 4.52 | 11.1 | 17.9 | 20.0 | 24.9 | 4.87 | 7.90 |
| MAX | 153 | 257 | 215 | 25 | 26 | 9.4 | 37 | 81 | 134 | 236 | 19 | 47 |
| MIN | 2.2 | 2.6 | 5.9 | 5.7 | 4.5 | 3.1 | 3.3 | 3.2 | 4.9 | 3.8 | 3.1 | 2.8 |
| AC-FT | 916 | 2150 | 1840 | 642 | 446 | 278 | 662 | 1100 | 1190 | 1530 | 300 | 470 |
| CFSM | 1.98 | 4.81 | 3.97 | 1.39 | 1.07 | .60 | 1.48 | 2.37 | 2.66 | 3.31 | .65 | 1.05 |
| IN. | 2.28 | 5.36 | 4.58 | 1.60 | 1.11 | .69 | 1.65 | 2.74 | 2.97 | 3.82 | .75 | 1.17 |

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1990 - 1993, BY WATER YEAR (WY)

| | 1990 | 1991 | 1992 | 1993 | 1990 | 1991 | 1992 | 1993 | 1990 | 1991 | 1992 | 1993 |
|------|------|------|------|------|------|------|------|------|------|------|------|------|
| MEAN | 19.6 | 17.1 | 15.9 | 13.9 | 9.68 | 5.40 | 5.93 | 12.5 | 10.8 | 12.1 | 8.39 | 8.19 |
| MAX | 39.4 | 36.2 | 29.9 | 24.5 | 13.2 | 5.88 | 11.1 | 19.5 | 20.0 | 24.9 | 17.2 | 12.9 |
| (WY) | 1991 | 1993 | 1993 | 1992 | 1991 | 1992 | 1993 | 1992 | 1993 | 1993 | 1992 | 1992 |
| MIN | 4.60 | 7.18 | 5.78 | 6.76 | 7.91 | 4.52 | 3.53 | 3.32 | 4.06 | 3.40 | 4.36 | 5.62 |
| (WY) | 1992 | 1991 | 1992 | 1991 | 1992 | 1993 | 1990 | 1990 | 1990 | 1990 | 1990 | 1991 |

SUMMARY STATISTICS

FOR 1992 CALENDAR YEAR

FOR 1993 WATER YEAR

WATER YEARS 1990 - 1993

| | | | |
|--------------------------|--------|--------|-------|
| ANNUAL TOTAL | 5751.8 | 5813.0 | |
| ANNUAL MEAN | 15.7 | 15.9 | 12.6 |
| HIGHEST ANNUAL MEAN | | | 15.9 |
| LOWEST ANNUAL MEAN | | | 10.5 |
| HIGHEST DAILY MEAN | 266 | Aug 9 | 292 |
| LOWEST DAILY MEAN | 2.2 | Jul 27 | 2.2 |
| ANNUAL SEVEN-DAY MINIMUM | 2.6 | Jul 25 | 2.6 |
| INSTANTANEOUS PEAK FLOW | | | 1700 |
| INSTANTANEOUS PEAK STAGE | | | 16.44 |
| INSTANTANEOUS LOW FLOW | | | 2.0 |
| ANNUAL RUNOFF (AC-FT) | 11410 | 11530 | 9120 |
| ANNUAL RUNOFF (CFSM) | 2.09 | 2.12 | 1.67 |
| ANNUAL RUNOFF (INCHES) | 28.42 | 28.72 | 22.72 |
| 10 PERCENT EXCEEDS | 32 | 37 | 19 |
| 50 PERCENT EXCEEDS | 6.2 | 6.8 | 5.4 |
| 90 PERCENT EXCEEDS | 3.2 | 3.4 | 3.3 |

RIO GRANDE DE LOIZA BASIN

50058350 RIO CAÑAS AT RIO CAÑAS, PR--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORDS.-- Water years 1990 to current year.

PERIOD OF DAILY RECORD.--

SUSPENDED-SEDIMENT DISCHARGE: March 1990 to September 1993.

INSTRUMENTATION.-- Automatic sediment sampler.

EXTREMES FOR PERIOD OF DAILY RECORD.--

SEDIMENT CONCENTRATION: Maximum daily mean, 2,470 mg/L Nov. 27, 1992; Minimum daily mean, 1 mg/L September 11, 1991

SEDIMENT LOADS: Maximum daily mean, 4,920 tons (4,460 tonnes) October 17, 1990; Minimum daily mean, 0.02 ton (0.02 tonne) several days.

EXTREMES FOR CURRENT YEAR.--

SEDIMENT CONCENTRATION: Maximum daily mean, 2,470 mg/L Nov. 27, 1992; Minimum daily mean, 4 mg/L several days.

SEDIMENT LOADS: Maximum daily mean, 4,100 tons (3,720 tonnes) Nov. 28, 1992; Minimum daily mean, 0.03 ton (0.03 tonne) several days.

SEDIMENT DISCHARGE, SUSPENDED (TONS/DAY), WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993

| DAY | MEAN DISCHARGE (CFS) | MEAN CONCEN- TRATION (MG/L) | SEDIMENT DISCHARGE (TONS/DAY) | MEAN DISCHARGE (CFS) | MEAN CONCEN- TRATION (MG/L) | SEDIMENT DISCHARGE (TONS/DAY) | MEAN DISCHARGE (CFS) | MEAN CONCEN- TRATION (MG/L) | SEDIMENT DISCHARGE (TONS/DAY) |
|---------|----------------------------|--------------------------------------|-------------------------------------|----------------------------|--------------------------------------|-------------------------------------|----------------------------|--------------------------------------|-------------------------------------|
| OCTOBER | | | NOVEMBER | | | DECEMBER | | | |
| 1 | 3.5 | 11 | .11 | 4.2 | 11 | .15 | 44 | 43 | 5.4 |
| 2 | 2.8 | 11 | .08 | 2.6 | 15 | .11 | 30 | 34 | 2.8 |
| 3 | 2.7 | 11 | .08 | 6.9 | 51 | 7.3 | 23 | 31 | 1.9 |
| 4 | 2.7 | 11 | .08 | 77 | 615 | 208 | 20 | 27 | 1.3 |
| 5 | 6.8 | 29 | 2.2 | 17 | 100 | 7.0 | 14 | 22 | .90 |
| 6 | 8.3 | 27 | 1.1 | 6.2 | 23 | .38 | 12 | 18 | .56 |
| 7 | 4.2 | 32 | .39 | 4.6 | 15 | .19 | 9.8 | 16 | .45 |
| 8 | 47 | 381 | 207 | 4.1 | 13 | .14 | 9.4 | 16 | .41 |
| 9 | 24 | 113 | 16 | 4.6 | 11 | .13 | 9.2 | 18 | .41 |
| 10 | 153 | 1340 | 2240 | 4.1 | 10 | .10 | 8.1 | 29 | .60 |
| 11 | 39 | 201 | 32 | 2.9 | 9 | .08 | 7.2 | 45 | .83 |
| 12 | 9.8 | 28 | .84 | 3.4 | 9 | .15 | 6.2 | 53 | .88 |
| 13 | 6.0 | 14 | .23 | 5.4 | 16 | .36 | 5.9 | 42 | .67 |
| 14 | 23 | 108 | 19 | 14 | 62 | 9.6 | 43 | 279 | 124 |
| 15 | 6.8 | 31 | .61 | 5.8 | 18 | .70 | 28 | 142 | 27 |
| 16 | 5.7 | 28 | .40 | 3.6 | 8 | .09 | 6.9 | 24 | .45 |
| 17 | 6.2 | 28 | .54 | 9.7 | 35 | 2.1 | 8.4 | 22 | .53 |
| 18 | 43 | 265 | 101 | 32 | 164 | 32 | 8.8 | 24 | .79 |
| 19 | 16 | 66 | 4.6 | 8.0 | 26 | .80 | 13 | 56 | 2.9 |
| 20 | 6.2 | 23 | .36 | 25 | 143 | 44 | 7.8 | 20 | .42 |
| 21 | 5.1 | 20 | .26 | 9.0 | 39 | 1.3 | 7.3 | 20 | .39 |
| 22 | 7.5 | 20 | .42 | 61 | 336 | 108 | 19 | 78 | 6.4 |
| 23 | 3.6 | 20 | .20 | 9.9 | 31 | 1.3 | 8.5 | 30 | .68 |
| 24 | 4.4 | 16 | .17 | 19 | 91 | 13 | 39 | 192 | 38 |
| 25 | 3.7 | 12 | .13 | 3.9 | 9 | .09 | 38 | 200 | 40 |
| 26 | 2.7 | 12 | .09 | 3.6 | 9 | .08 | 215 | 1630 | 2610 |
| 27 | 2.6 | 12 | .08 | 257 | 2470 | 3990 | 60 | 333 | 60 |
| 28 | 2.5 | 11 | .07 | 252 | 1720 | 4100 | 74 | 436 | 161 |
| 29 | 2.2 | 10 | .06 | 67 | 205 | 42 | 67 | 473 | 260 |
| 30 | 3.7 | 12 | .15 | 162 | 970 | 1260 | 42 | 139 | 20 |
| 31 | 7.2 | 26 | .57 | --- | --- | --- | 42 | 194 | 29 |
| TOTAL | 461.9 | --- | 2628.82 | 1085.5 | --- | 9829.15 | 926.5 | --- | 3398.67 |

RIO GRANDE DE LOIZA BASIN

50058350 RIO CAÑAS AT RIO CAÑAS, PR--Continued

SEDIMENT DISCHARGE, SUSPENDED (TONS/DAY), WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993

| DAY | MEAN DISCHARGE (CFS) | MEAN CONCEN- TRATION (MG/L) | SEDIMENT DISCHARGE (TONS/DAY) | MEAN DISCHARGE (CFS) | MEAN CONCEN- TRATION (MG/L) | SEDIMENT DISCHARGE (TONS/DAY) | MEAN DISCHARGE (CFS) | MEAN CONCEN- TRATION (MG/L) | SEDIMENT DISCHARGE (TONS/DAY) |
|---------|----------------------------|--------------------------------------|-------------------------------------|----------------------------|--------------------------------------|-------------------------------------|----------------------------|--------------------------------------|-------------------------------------|
| JANUARY | | | FEBRUARY | | | MARCH | | | |
| 1 | 16 | 57 | 2.7 | 9.1 | 5 | .12 | 4.3 | 22 | .26 |
| 2 | 17 | 60 | 3.6 | 9.1 | 5 | .12 | 4.8 | 28 | .35 |
| 3 | 13 | 28 | 1.0 | 12 | 5 | .17 | 4.9 | 30 | .40 |
| 4 | 9.1 | 19 | .47 | 7.9 | 7 | .15 | 4.9 | 25 | .33 |
| 5 | 18 | 83 | 13 | 7.8 | 8 | .16 | 4.9 | 15 | .20 |
| 6 | 16 | 71 | 7.4 | 7.8 | 8 | .16 | 4.9 | 7 | .10 |
| 7 | 25 | 108 | 12 | 7.2 | 8 | .16 | 4.9 | 7 | .09 |
| 8 | 13 | 31 | 1.4 | 7.1 | 8 | .16 | 4.7 | 10 | .12 |
| 9 | 8.5 | 13 | .29 | 6.7 | 9 | .16 | 4.4 | 10 | .12 |
| 10 | 7.6 | 12 | .23 | 7.2 | 10 | .18 | 4.0 | 10 | .11 |
| 11 | 6.7 | 11 | .20 | 7.3 | 11 | .24 | 3.8 | 10 | .10 |
| 12 | 7.2 | 11 | .21 | 9.0 | 15 | .41 | 3.8 | 11 | .11 |
| 13 | 7.2 | 11 | .22 | 8.8 | 17 | .43 | 3.7 | 13 | .13 |
| 14 | 7.2 | 11 | .20 | 7.8 | 14 | .28 | 3.5 | 14 | .14 |
| 15 | 6.7 | 10 | .17 | 8.5 | 10 | .25 | 3.5 | 14 | .14 |
| 16 | 6.7 | 8 | .16 | 26 | 117 | 21 | 4.9 | 14 | .17 |
| 17 | 7.1 | 8 | .15 | 9.6 | 35 | 1.1 | 4.5 | 13 | .16 |
| 18 | 6.1 | 8 | .13 | 7.4 | 23 | .44 | 4.4 | 11 | .13 |
| 19 | 5.7 | 8 | .13 | 7.4 | 20 | .38 | 4.0 | 7 | .09 |
| 20 | 6.2 | 8 | .14 | 7.2 | 20 | .38 | 3.8 | 5 | .06 |
| 21 | 6.2 | 9 | .16 | 7.2 | 20 | .38 | 3.7 | 5 | .06 |
| 22 | 18 | 70 | 9.2 | 6.6 | 20 | .36 | 3.5 | 7 | .07 |
| 23 | 13 | 46 | 2.8 | 5.3 | 20 | .28 | 3.9 | 9 | .11 |
| 24 | 8.4 | 20 | .44 | 5.3 | 19 | .27 | 9.4 | 32 | 2.1 |
| 25 | 13 | 44 | 2.7 | 5.2 | 16 | .22 | 5.8 | 28 | .47 |
| 26 | 9.1 | 34 | .92 | 4.9 | 11 | .15 | 5.5 | 25 | .35 |
| 27 | 8.7 | 34 | .79 | 4.9 | 10 | .13 | 5.9 | 28 | .42 |
| 28 | 8.2 | 27 | .61 | 4.5 | 15 | .18 | 4.8 | 30 | .40 |
| 29 | 12 | 19 | .62 | --- | --- | --- | 4.1 | 33 | .36 |
| 30 | 8.5 | 7 | .17 | --- | --- | --- | 3.8 | 39 | .39 |
| 31 | 8.8 | 5 | .11 | --- | --- | --- | 3.1 | 41 | .35 |
| TOTAL | 323.9 | --- | 62.32 | 224.8 | --- | 28.42 | 140.1 | --- | 8.39 |

RIO GRANDE DE LOIZA BASIN

50058350 RIO CAÑAS AT RIO CAÑAS, PR--Continued

SEDIMENT DISCHARGE, SUSPENDED (TONS/DAY), WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993

| DAY | MEAN DISCHARGE (CFS) | MEAN CONCENTRATION (MG/L) | SEDIMENT DISCHARGE (TONS/DAY) | MEAN DISCHARGE (CFS) | MEAN CONCENTRATION (MG/L) | SEDIMENT DISCHARGE (TONS/DAY) | MEAN DISCHARGE (CFS) | MEAN CONCENTRATION (MG/L) | SEDIMENT DISCHARGE (TONS/DAY) |
|-------|----------------------------|---------------------------------|-------------------------------------|----------------------------|---------------------------------|-------------------------------------|----------------------------|---------------------------------|-------------------------------------|
| APRIL | | | MAY | | | JUNE | | | |
| 1 | 3.3 | 25 | .22 | 53 | 370 | 142 | 9.8 | 23 | .59 |
| 2 | 3.8 | 9 | .09 | 67 | 403 | 131 | 9.8 | 17 | .45 |
| 3 | 3.8 | 8 | .08 | 9.0 | 25 | .81 | 7.4 | 15 | .30 |
| 4 | 3.8 | 8 | .08 | 4.4 | 10 | .13 | 6.2 | 16 | .26 |
| 5 | 3.8 | 8 | .08 | 14 | 81 | 8.9 | 6.2 | 16 | .26 |
| 6 | 3.5 | 8 | .08 | 5.4 | 87 | 1.3 | 6.2 | 16 | .26 |
| 7 | 3.6 | 8 | .08 | 4.5 | 83 | .96 | 6.2 | 16 | .26 |
| 8 | 36 | 237 | 109 | 7.0 | 83 | 1.7 | 27 | 138 | 26 |
| 9 | 16 | 64 | 5.2 | 15 | 130 | 6.5 | 68 | 520 | 460 |
| 10 | 6.8 | 17 | .40 | 8.2 | 98 | 2.2 | 30 | 143 | 16 |
| 11 | 18 | 80 | 9.2 | 5.8 | 90 | 1.4 | 15 | 56 | 2.7 |
| 12 | 15 | 59 | 7.4 | 4.0 | 89 | .97 | 11 | 31 | .86 |
| 13 | 37 | 209 | 68 | 3.2 | 88 | .76 | 10 | 31 | .86 |
| 14 | 11 | 37 | 1.5 | 55 | 376 | 147 | 38 | 227 | 83 |
| 15 | 6.3 | 11 | .17 | 12 | 38 | 1.5 | 26 | 127 | 20 |
| 16 | 6.3 | 8 | .15 | 7.7 | 19 | .38 | 15 | 61 | 3.9 |
| 17 | 4.3 | 7 | .09 | 5.9 | 16 | .25 | 6.3 | 17 | .30 |
| 18 | 3.7 | 7 | .07 | 5.5 | 15 | .23 | 7.1 | 25 | 2.1 |
| 19 | 3.5 | 7 | .06 | 5.2 | 15 | .21 | 134 | 880 | 384 |
| 20 | 27 | 135 | 24 | 5.4 | 15 | .22 | 70 | 419 | 125 |
| 21 | 14 | 49 | 2.4 | 5.7 | 15 | .24 | 22 | 73 | 4.2 |
| 22 | 7.7 | 36 | .80 | 5.6 | 15 | .24 | 11 | 33 | 1.1 |
| 23 | 5.8 | 24 | .37 | 11 | 38 | 2.4 | 8.2 | 20 | .43 |
| 24 | 4.7 | 14 | .17 | 6.2 | 21 | .36 | 6.4 | 20 | .33 |
| 25 | 4.0 | 7 | .08 | 7.0 | 19 | .34 | 5.5 | 20 | .28 |
| 26 | 5.1 | 11 | .45 | 81 | 711 | 724 | 4.9 | 19 | .25 |
| 27 | 18 | 82 | 11 | 42 | 194 | 23 | 4.9 | 17 | .23 |
| 28 | 14 | 58 | 5.6 | 57 | 377 | 210 | 11 | 132 | 17 |
| 29 | 29 | 146 | 25 | 19 | 44 | 2.8 | 12 | 43 | 2.2 |
| 30 | 15 | 129 | 5.8 | 12 | 27 | .86 | 6.4 | 21 | .38 |
| 31 | --- | --- | --- | 10 | 25 | .70 | --- | --- | --- |
| TOTAL | 333.8 | --- | 277.62 | 553.7 | --- | 1413.36 | 601.5 | --- | 1153.50 |

RIO GRANDE DE LOIZA BASIN

50058350 RIO CAÑAS AT RIO CAÑAS, PR--Continued

SEDIMENT DISCHARGE, SUSPENDED (TONS/DAY), WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993

| DAY | MEAN DISCHARGE (CFS) | MEAN CONCEN- TRATION (MG/L) | SEDIMENT DISCHARGE (TONS/DAY) | MEAN DISCHARGE (CFS) | MEAN CONCEN- TRATION (MG/L) | SEDIMENT DISCHARGE (TONS/DAY) | MEAN DISCHARGE (CFS) | MEAN CONCEN- TRATION (MG/L) | SEDIMENT DISCHARGE (TONS/DAY) |
|-------|----------------------------|--------------------------------------|-------------------------------------|----------------------------|--------------------------------------|-------------------------------------|----------------------------|--------------------------------------|-------------------------------------|
| JULY | | | AUGUST | | | SEPTEMBER | | | |
| 1 | 4.9 | 15 | .20 | 4.9 | 10 | .13 | 2.9 | 4 | .03 |
| 2 | 5.5 | 12 | .17 | 4.1 | 10 | .12 | 2.9 | 4 | .03 |
| 3 | 6.8 | 12 | .20 | 4.1 | 10 | .11 | 3.0 | 4 | .03 |
| 4 | 5.1 | 12 | .18 | 4.1 | 10 | .11 | 7.4 | 25 | 2.0 |
| 5 | 3.9 | 12 | .13 | 4.1 | 10 | .11 | 5.6 | 16 | .39 |
| 6 | 3.8 | 12 | .12 | 4.0 | 11 | .12 | 17 | 92 | 32 |
| 7 | 99 | 1200 | 1810 | 3.7 | 13 | .12 | 4.6 | 13 | .24 |
| 8 | 41 | 202 | 25 | 3.5 | 12 | .11 | 2.9 | 6 | .04 |
| 9 | 33 | 141 | 13 | 16 | 80 | 16 | 3.3 | 6 | .05 |
| 10 | 31 | 128 | 11 | 4.2 | 20 | .24 | 2.8 | 6 | .05 |
| 11 | 236 | 2060 | 2480 | 3.4 | 15 | .15 | 8.1 | 33 | 4.3 |
| 12 | 48 | 245 | 40 | 4.1 | 15 | .16 | 2.9 | 7 | .06 |
| 13 | 18 | 53 | 3.2 | 3.7 | 14 | .13 | 2.8 | 6 | .05 |
| 14 | 12 | 10 | .33 | 3.6 | 13 | .14 | 2.8 | 6 | .05 |
| 15 | 12 | 27 | 1.5 | 3.4 | 12 | .11 | 3.4 | 10 | .27 |
| 16 | 9.4 | 27 | .76 | 19 | 97 | 7.1 | 3.9 | 9 | .11 |
| 17 | 7.0 | 15 | .28 | 4.6 | 50 | .67 | 2.9 | 6 | .04 |
| 18 | 7.9 | 15 | .30 | 3.9 | 37 | .38 | 47 | 833 | 485 |
| 19 | 6.7 | 15 | .26 | 3.5 | 25 | .23 | 17 | 61 | 3.3 |
| 20 | 5.3 | 15 | .22 | 3.4 | 15 | .13 | 34 | 199 | 67 |
| 21 | 5.2 | 15 | .21 | 3.2 | 9 | .07 | e3.5 | 73 | e.69 |
| 22 | 16 | 67 | 6.2 | 6.1 | 18 | .58 | e3.0 | 24 | e.19 |
| 23 | 48 | 267 | 55 | 5.3 | 17 | .30 | e4.2 | 11 | e.12 |
| 24 | 36 | 172 | 27 | 3.4 | 11 | .09 | e3.2 | 10 | e.08 |
| 25 | 15 | 55 | 3.0 | 3.2 | 10 | .08 | e3.0 | 9 | e.08 |
| 26 | 21 | 94 | 11 | 4.4 | 10 | .11 | e3.1 | 8 | e.07 |
| 27 | 12 | 37 | 1.5 | 6.3 | 18 | .77 | e2.9 | 7 | e.05 |
| 28 | 7.3 | 13 | .25 | 4.2 | 8 | .09 | e5.8 | 40 | e.64 |
| 29 | 6.0 | 10 | .15 | 3.3 | 7 | .07 | 11 | 38 | 1.3 |
| 30 | 5.3 | 10 | .14 | 3.2 | 5 | .05 | 20 | 88 | 17 |
| 31 | 5.3 | 10 | .14 | 3.1 | 4 | .04 | --- | --- | --- |
| TOTAL | 773.4 | --- | 4491.44 | 151.0 | --- | 28.62 | 236.9 | --- | 615.26 |
| YEAR | 5813.0 | | 23935.57 | | | | | | |

e Estimated

RIO GRANDE DE LOIZA BASIN

50058350 RIO CAÑAS AT CAÑAS, PR--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993

PARTICLE-SIZE DISTRIBUTION OF SUSPENDED SEDIMENT

| DATE | TIME | DIS- CHARGE, INST. CUBIC FEET PER SECOND | SEDI- MENT, DIS- CHARGE, SUS- PENDED (MG/L) | SEDI- MENT, DIS- CHARGE, SUS- PENDED (T/DAY) | SED. SUSP. FALL DIAM. PERCENT FINER THAN .002 MM | SED. SUSP. FALL DIAM. PERCENT FINER THAN .004 MM | SED. SUSP. FALL DIAM. PERCENT FINER THAN .008 MM |
|----------|------|--|---|--|---|---|---|
| OCT 1992 | | | | | | | |
| 08... | 1635 | 359 | 16200 | 15700 | 25 | 28 | 36 |
| DEC | | | | | | | |
| 26... | 1520 | 295 | 3230 | 2570 | 37 | 41 | 44 |
| MAY 1993 | | | | | | | |
| 05... | 1520 | 48 | 4570 | 592 | 55 | 63 | 73 |
| JUL | | | | | | | |
| 07... | 1325 | 961 | 20500 | 53100 | 37 | 45 | 48 |
| SEP | | | | | | | |
| 16... | 1717 | 53 | 14900 | 2140 | 47 | 57 | 67 |

| DATE | SED. SUSP. FALL DIAM. PERCENT FINER THAN .016 MM | SED. SUSP. FALL DIAM. PERCENT FINER THAN .031 MM | SED. SUSP. SIEVE DIAM. PERCENT FINER THAN .062 MM | SED. SUSP. SIEVE DIAM. PERCENT FINER THAN .125 MM | SED. SUSP. SIEVE DIAM. PERCENT FINER THAN .250 MM | SED. SUSP. SIEVE DIAM. PERCENT FINER THAN .500 MM | SED. SUSP. SIEVE DIAM. PERCENT FINER THAN 1.00 MM |
|----------|---|---|--|--|--|--|--|
| OCT 1992 | | | | | | | |
| 08... | 45 | 58 | 76 | 88 | 97 | 99 | 100 |
| DEC | | | | | | | |
| 26... | 51 | 57 | 67 | 77 | 87 | 91 | 93 |
| MAY 1993 | | | | | | | |
| 05... | 81 | 83 | 99 | 99.5 | 99.7 | 99.8 | 100 |
| JUL | | | | | | | |
| 07... | 60 | 68 | 83 | 90 | 94 | 97 | 99 |
| SEP | | | | | | | |
| 16... | 81 | 89 | 99 | 99.8 | 99.9 | 100 | 100 |

RIO GRANDE DE LOIZA BASIN
 50058350 RIO CAÑAS AT CAÑAS, PR--Continued
 WATER QUALITY DATA, WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993
 SILT AND CLAY PERCENT OF SUSPENDED SEDIMENT

| DATE | TIME | STREAM- FLOW, INSTAN- TANEOUS (CFS) | SEDI- MENT, SUS- PENDEED (MG/L) | SEDI- MENT, DIS- CHARGE, SUS- PENDEED (T/DAY) | SED. SUSP. SIEVE DIAM. PERCENT FINER THAN .062 MM |
|----------|------|---|---|---|--|
| OCT 1992 | | | | | |
| 08... | 1755 | 172 | 2310 | 1070 | 98 |
| 14... | 1718 | 82 | 805 | 178 | 97 |
| NOV | | | | | |
| 27... | 1100 | 586 | 5610 | 8880 | 57 |
| DEC | | | | | |
| 26... | 0215 | 224 | 1900 | 1150 | 88 |
| APR 1993 | | | | | |
| 10... | 0818 | 140 | 6.8 | 2.6 | 96 |
| 21... | 1735 | 27 | 656 | 48 | 99 |
| JUN | | | | | |
| 15... | 1600 | 13 | 2990 | 105 | 21 |
| JUL | | | | | |
| 07... | 1445 | 411 | 8410 | 9330 | 99 |
| 11... | 1415 | 615 | 1770 | 2940 | 91 |

RIO GRANDE DE LOIZA BASIN

50059000 LAGO LOIZA AT DAMSITE, PR

LOCATION.--Lat 18°19'49", long 66°01'00", Hydrologic Unit 21010005, at pumpsite at damsite, and 1.9 mi (3.1 km) south of Trujillo Alto plaza.

DRANAIGE AREA.--208 mi² (539 km²).

ELEVATION RECORDS

PERIOD OF RECORD.--December 1987 to current year.

GAGE.--Water-stage recorder. Datum of gage is mean sea level.

REMARKS.--Lake is formed by Loiza Dam, a concrete structure completed in 1954. Useable capacity of impoundment is 30,000 acre-ft (37.0 hm³). Out flow from lake is controlled by five slide gates in powerplant and pump intake structure, four sluice gates, and concrete spillway with eight radial gates. Lake is used for municipal water supply and intermittent power generation. Gage-height satellite telemetry at station.

EXTREMES OBSERVED FOR PERIOD OF RECORD.--Maximum elevation 147.42 ft (44.93 m), Sept. 18, 1989; minimum elevation, 125.86 ft (38.36 m), June 12, 1988.

EXTREMES FOR CURRENT YEAR.--Maximum elevation 134.88 ft (41.11 m), May 14; minimum elevation, 127.06 ft (38.73 m), Apr. 8.

Capacity Table
(based on data from Puerto Rico Electric Power Authority)

| Elevation, in feet | Contents in acre-feet | Elevation, in feet | Contents in acre-feet |
|--------------------|-----------------------|--------------------|-----------------------|
| 98.4 | 5,000 | 128.6 | 18,000 |
| 111.5 | 8,900 | 137.8 | 26,000 |
| 120.4 | 13,000 | 147.6 | 35,000 |

ELEVATION (FEET NGVD), WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993
DAILY OBSERVATION AT 24:00 VALUES

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|
| 1 | 133.15 | 133.28 | 133.08 | 133.28 | 134.33 | 133.51 | 128.83 | 133.47 | 133.72 | 134.05 | 133.61 | 133.72 |
| 2 | 133.25 | 133.26 | 132.58 | 132.73 | 133.71 | 133.43 | 128.51 | 133.33 | 133.64 | 133.53 | 133.00 | 132.48 |
| 3 | 133.29 | 133.52 | 133.35 | 133.41 | 134.06 | 133.32 | 128.27 | 134.25 | 133.53 | 133.55 | 133.20 | 132.64 |
| 4 | 133.32 | 133.61 | 133.00 | 132.79 | 134.14 | 133.17 | 128.01 | 134.45 | 133.41 | 133.96 | 133.34 | 132.72 |
| 5 | 133.34 | 133.26 | 132.92 | 133.25 | 134.18 | 133.03 | 127.74 | 134.15 | 133.29 | 134.06 | 133.50 | 133.22 |
| 6 | 133.62 | 132.97 | 133.10 | 133.68 | 134.22 | 132.92 | 127.48 | 134.03 | 133.11 | 134.08 | 132.92 | 132.78 |
| 7 | 133.40 | 133.10 | 133.03 | 133.63 | 134.24 | 132.74 | 127.24 | 134.17 | 132.96 | 133.64 | 133.02 | 132.92 |
| 8 | 133.08 | 133.30 | 133.13 | 133.09 | 134.24 | 132.61 | 127.20 | 134.21 | 133.01 | 133.62 | 133.16 | 133.28 |
| 9 | 133.30 | 133.39 | 133.13 | 133.51 | 134.22 | 132.46 | 127.24 | 134.01 | 133.45 | 133.68 | 133.30 | 132.84 |
| 10 | 133.00 | 133.60 | 133.13 | 132.97 | 134.24 | 132.30 | 127.24 | 133.97 | 133.67 | 133.32 | 133.40 | 133.66 |
| 11 | 133.15 | 133.12 | 133.13 | 133.22 | 134.24 | 132.12 | 127.16 | 134.14 | 133.71 | 132.57 | 133.48 | 132.82 |
| 12 | 133.21 | 133.20 | 133.13 | 133.45 | 134.30 | 131.92 | 127.18 | 134.20 | 133.65 | 133.87 | 133.58 | 132.96 |
| 13 | 133.21 | 133.35 | 133.13 | 133.62 | 134.40 | 131.74 | 127.78 | 134.18 | 133.57 | 132.83 | 133.62 | 133.04 |
| 14 | 133.28 | 133.49 | 133.13 | 133.83 | 134.42 | 131.60 | 128.21 | 134.00 | 133.79 | 132.85 | 132.76 | 133.12 |
| 15 | 133.26 | 133.03 | 133.21 | 133.96 | 134.40 | 131.42 | 130.65 | 133.98 | 133.69 | 132.84 | 132.83 | 133.20 |
| 16 | 133.24 | 133.41 | 133.35 | 134.09 | 134.42 | 131.32 | 130.97 | 134.20 | 134.27 | 133.00 | 133.27 | 133.70 |
| 17 | 133.21 | 133.55 | 133.48 | 133.70 | 134.38 | 131.20 | 130.99 | 134.28 | 134.35 | 132.94 | 132.99 | 133.04 |
| 18 | 133.55 | 132.83 | 132.97 | 133.78 | 134.31 | 131.12 | 130.89 | 134.32 | 133.96 | 133.28 | 133.25 | 132.86 |
| 19 | 133.31 | 133.68 | 133.02 | 133.88 | 134.23 | 131.02 | 130.90 | 133.82 | 133.73 | 132.86 | 133.39 | 133.48 |
| 20 | 133.34 | 133.54 | 133.10 | 133.97 | 134.19 | 130.94 | 131.02 | 133.82 | 134.02 | 133.10 | 133.49 | 133.10 |
| 21 | 133.50 | 132.92 | 133.14 | 134.01 | 134.15 | 130.82 | 131.18 | 133.80 | 133.73 | 133.25 | 133.55 | 133.32 |
| 22 | 133.32 | 132.96 | 133.46 | 133.17 | 134.09 | 130.62 | 131.12 | 133.76 | 133.68 | 132.97 | 133.37 | 133.40 |
| 23 | 133.31 | 133.44 | 132.86 | 133.53 | 134.01 | 130.51 | 130.98 | 133.96 | 134.22 | 133.33 | 133.11 | 132.86 |
| 24 | 133.31 | 132.68 | 133.10 | 133.65 | 133.93 | 130.45 | 131.00 | 134.02 | 133.73 | 132.77 | 133.63 | 133.58 |
| 25 | 133.61 | 132.90 | 133.47 | 133.99 | 133.79 | 130.29 | 130.96 | 134.06 | 133.94 | 133.35 | 132.97 | 132.62 |
| 26 | 133.30 | 133.02 | 132.97 | 134.15 | 133.77 | 130.13 | 130.86 | 133.58 | 134.10 | 132.75 | 133.17 | 133.00 |
| 27 | 133.28 | 132.78 | 133.13 | 133.47 | 133.71 | 129.97 | 131.05 | 134.08 | 134.21 | 133.13 | 133.36 | 133.40 |
| 28 | 133.28 | 132.90 | 132.72 | 133.73 | 133.57 | 129.79 | 131.17 | 133.74 | 134.39 | 132.97 | 133.44 | 132.58 |
| 29 | 133.27 | 133.05 | 133.58 | 133.71 | --- | 129.55 | 132.53 | 133.82 | 133.65 | 133.43 | 133.50 | 133.42 |
| 30 | 133.27 | 132.80 | 132.68 | 134.05 | --- | 129.33 | 133.43 | 133.82 | 133.95 | 133.01 | 133.54 | 132.92 |
| 31 | 133.27 | --- | 133.28 | 134.19 | --- | 129.09 | --- | 133.78 | --- | 133.33 | 133.62 | --- |
| MEAN | 133.30 | 133.20 | 133.11 | 133.60 | 134.14 | 131.43 | 129.59 | 133.98 | 133.74 | 133.29 | 133.30 | 133.09 |
| MAX | 133.62 | 133.68 | 133.58 | 134.19 | 134.42 | 133.51 | 133.43 | 134.45 | 134.39 | 134.08 | 133.63 | 133.72 |
| MIN | 133.00 | 132.68 | 132.58 | 132.73 | 133.57 | 129.09 | 127.16 | 133.33 | 132.96 | 132.57 | 132.76 | 132.48 |

RIO GRANDE DE LOIZA BASIN
50059000 LAGO LOIZA AT DAMSITE, PR
WATER-QUALITY RECORDS

LOCATION.--Lat 18°19'49", long 66°01'00", at pumphouse at damsite, and 1.9 mi (3.1 km) south of Trujillo Alto plaza.

DRAINAGE AREA.--208 sq mi (539 sq km).

PERIOD OF RECORD.--Water years 1974 to current year.

WATER-QUALITY DATA, WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993

| DATE | TIME | SPE- CIFIC CON- DUCT- ANCE (US/CM) | PH WATER WHOLE FIELD (STAND- ARD UNITS) | TEMPER- ATURE WATER (DEG C) | OXYGEN, DIS- SOLVED (MG/L) | OXYGEN, DIS- SOLVED (PER- CENT SATUR- ATION) | OXYGEN DEMAND, CHEM- ICAL (HIGH LEVEL) (MG/L) | COLI- FORM, FECAL, 0.45 UM-MF (COLS./ 100 ML) | STREP- TOCOCCI FECAL, (COLS. PER 100 ML) |
|----------|------|---|---|--------------------------------------|-------------------------------------|--|---|---|---|
| OCT 1992 | | | | | | | | | |
| 06... | 1120 | 180 | 6.8 | 30.0 | 2.5 | 33 | 17 | 56 | K10 |
| DEC | | | | | | | | | |
| 04... | 1215 | 147 | 7.2 | 25.9 | 2.0 | 26 | <10 | 580 | 410 |
| FEB 1993 | | | | | | | | | |
| 09... | 1040 | 314 | 8.3 | 26.2 | 1.7 | 22 | <10 | K700 | K20 |
| APR | | | | | | | | | |
| 08... | 1250 | 300 | 6.8 | 29.1 | 1.6 | 21 | <10 | 42 | 32 |
| MAY | | | | | | | | | |
| 24... | 1445 | 251 | 6.6 | 28.5 | 1.5 | 19 | 35 | K820 | 570 |
| AUG | | | | | | | | | |
| 06... | 1130 | 214 | 6.9 | 28.6 | 2.5 | 32 | 14 | 120 | K4 |

| DATE | ALKA- LITY WAT WH TOT FET FIELD MG/L AS CACO3 | SULFIDE TOTAL (MG/L AS S) | RESIDUE TOTAL AT 105 DEG. C, SUS- PENDED (MG/L) | NITRO- GEN, NITRATE TOTAL (MG/L AS N) | NITRO- GEN, NITRITE TOTAL (MG/L AS N) | NITRO- GEN, NO2+NO3 TOTAL (MG/L AS N) | NITRO- GEN, AMMONIA TOTAL (MG/L AS N) | NITRO- GEN, ORGANIC TOTAL (MG/L AS N) | NITRO- GEN, AM- MONIA + ORGANIC TOTAL (MG/L AS N) | NITRO- GEN, TOTAL (MG/L AS N) |
|----------|---|------------------------------------|---|--|--|--|--|--|---|---|
| OCT 1992 | | | | | | | | | | |
| 06... | 49 | <0.5 | 12 | 1.35 | 0.050 | 1.40 | 0.190 | 0.71 | 0.90 | 2.3 |
| DEC | | | | | | | | | | |
| 04... | 43 | -- | <1 | 0.560 | 0.040 | 0.600 | 0.170 | 0.43 | 0.60 | 5.3 |
| FEB 1993 | | | | | | | | | | |
| 09... | 170 | -- | <1 | 0.570 | 0.030 | 0.600 | 0.160 | 0.94 | 1.1 | 1.7 |
| APR | | | | | | | | | | |
| 08... | 120 | <0.5 | 21 | 0.150 | 0.050 | 0.200 | 0.180 | 0.52 | 0.70 | 0.90 |
| MAY | | | | | | | | | | |
| 24... | 120 | -- | 42 | 0.070 | 0.030 | 0.100 | 0.510 | 0.99 | 1.5 | -- |
| AUG | | | | | | | | | | |
| 06... | 74 | -- | 4 | 0.090 | 0.010 | 0.100 | 0.120 | 1.2 | 1.3 | 1.4 |

| DATE | NITRO- GEN, TOTAL (MG/L AS NO3) | PHOS- PHORUS TOTAL (MG/L AS P) | BORON, TOTAL RECOV- ERABLE (UG/L AS B) | COPPER, TOTAL RECOV- ERABLE (UG/L AS CU) | IRON, TOTAL RECOV- ERABLE (UG/L AS FE) | MANGA- NESE, TOTAL RECOV- ERABLE (UG/L AS MN) | ZINC, TOTAL RECOV- ERABLE (UG/L AS ZN) | CYANIDE TOTAL (MG/L AS CN) | PHENOLS TOTAL (UG/L) | METHY- LENE BLUE ACTIVE SUB- STANCE (MG/L) |
|----------|---|--|---|---|---|---|---|-------------------------------------|----------------------------|--|
| OCT 1992 | | | | | | | | | | |
| 06... | 10 | 0.210 | 90 | 80 | 1200 | 260 | 100 | <0.010 | 3 | 0.07 |
| DEC | | | | | | | | | | |
| 04... | 7.5 | 0.170 | -- | -- | -- | -- | -- | -- | -- | -- |
| FEB 1993 | | | | | | | | | | |
| 09... | 4.0 | 0.220 | -- | -- | -- | -- | -- | -- | -- | -- |
| APR | | | | | | | | | | |
| 08... | 5.3 | 0.200 | 60 | <10 | 100 | 340 | 40 | <0.010 | 2 | 0.05 |
| MAY | | | | | | | | | | |
| 24... | 3.2 | 0.190 | -- | -- | -- | -- | -- | -- | -- | -- |
| AUG | | | | | | | | | | |
| 06... | 6.2 | 0.20 | -- | -- | -- | -- | -- | -- | -- | -- |

K = non-ideal count

RIO GRANDE DE LOIZA BASIN

50059050 RIO GRANDE DE LOIZA BELOW DAMSITE, PR

LOCATION.--Lat 18°20'33" , long 66°00'20", Hydrologic Unit 21010005, on left bank of Highway 175, 1.1 mi (1.8 km) downstream of Lago Loiza Dam.

DRAINAGE AREA.--209 mi² (541 km²).

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--December 1986 to current year.

GAGE.--Water-stage recorder and crest-stage gage. Elevation of gage is 32 ft (10 m), from topographic map.

REMARKS.--Records poor. Flow regulated by Lago Loiza Dam. Gage-height and precipitation satellite telemetry at station.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1991 TO SEPTEMBER 1992
DAILY MEAN VALUES

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|-------|--------|---------|--------|---------|-------|-------|-------|---------|-------|--------|--------|--------|
| 1 | 12 | 20 | 10 | 8.2 | 14 | 9.3 | 8.4 | 5.5 | 249 | 11 | 10 | 11 |
| 2 | 287 | 23 | 739 | 8.2 | 14 | 9.3 | 8.1 | 13 | 725 | 11 | 9.8 | 12 |
| 3 | 337 | 21 | 6.2 | 8.3 | 14 | 9.5 | 8.0 | 4.2 | 475 | 12 | 9.6 | 11 |
| 4 | 15 | 19 | 5.7 | 8.9 | 15 | 9.7 | 7.5 | 3.5 | 628 | 12 | 9.7 | 11 |
| 5 | 16 | 19 | 5.2 | 12800 | 16 | 9.7 | 7.4 | 3.2 | 14 | 129 | 1880 | 11 |
| 6 | 15 | 18 | 215 | 7210 | 17 | 9.6 | 7.2 | 8.8 | 232 | 12 | 220 | 393 |
| 7 | 15 | 1070 | 6.8 | 479 | 154 | 9.4 | 8.3 | 5.8 | 469 | 11 | 366 | 11 |
| 8 | 16 | 5350 | 6.6 | 415 | 13 | 9.5 | 8.2 | 3.6 | 27 | 11 | 9.4 | 343 |
| 9 | 16 | 1570 | 6.9 | 170 | 12 | 9.3 | 7.4 | 3.8 | 827 | 165 | 288 | 11 |
| 10 | 16 | 694 | 7.2 | 637 | 11 | 9.3 | 6.2 | 5.1 | 358 | 13 | 11 | 9.7 |
| 11 | 16 | 108 | 7.5 | 142 | 11 | 9.3 | 5.5 | 3.6 | 400 | 12 | 452 | 9.7 |
| 12 | 16 | 187 | 7.3 | 22 | 10 | 8.9 | 4.7 | 3.6 | 909 | 12 | 7.7 | 9.7 |
| 13 | 196 | 64 | 7.0 | 19 | 9.7 | 8.9 | 4.5 | 3.4 | 788 | 12 | 8.0 | 9.7 |
| 14 | 8.2 | 140 | 6.8 | 269 | 9.3 | 9.3 | 3.7 | 3.5 | 410 | 12 | 11 | 9.7 |
| 15 | 7.9 | 4.9 | 185 | 8.9 | 9.3 | 9.3 | 3.8 | 3.4 | 295 | 12 | 468 | 10 |
| 16 | 7.9 | 4.9 | 7.9 | 125 | 9.3 | 9.3 | 4.4 | 8.1 | 237 | 12 | 10 | 10 |
| 17 | 7.8 | 231 | 7.5 | 5.7 | 9.3 | 10 | 4.4 | 5.3 | 485 | 200 | 10 | 500 |
| 18 | 7.7 | 5.0 | 7.5 | 187 | 9.1 | 11 | 4.7 | 17 | 22 | 14 | 11 | 9.5 |
| 19 | 7.8 | 4.9 | 7.5 | 6.5 | 9.2 | 10 | 11 | 222 | 21 | 12 | 11 | 551 |
| 20 | 7.8 | 5.1 | 7.8 | 6.7 | 11 | 9.9 | 7.4 | 11 | 240 | 12 | 12 | 3380 |
| 21 | 8.0 | 400 | 155 | 6.8 | 9.3 | 8.9 | 4.7 | 10 | 1100 | 184 | 11 | 2190 |
| 22 | 7.8 | 318 | 8.6 | 7.0 | 9.3 | 8.9 | 4.4 | 10 | 21 | 441 | 12 | 283 |
| 23 | 7.9 | 5.6 | 8.2 | 7.3 | 9.3 | 8.9 | 4.1 | 2010 | 15 | 10 | 12 | 272 |
| 24 | 8.0 | 210 | 8.2 | 7.8 | 9.3 | 8.9 | 4.0 | 3400 | 302 | 12 | 12 | 11 |
| 25 | 8.0 | 220 | 8.3 | 94 | 9.3 | 8.9 | 3.7 | 864 | 10 | 10 | 11 | 155 |
| 26 | 8.0 | 11 | 8.5 | 12 | 9.2 | 8.9 | 3.7 | 3550 | 10 | 9.3 | 12 | 8.6 |
| 27 | 8.0 | 298 | 8.5 | 12 | 8.9 | 8.9 | 3.3 | 478 | 10 | 10 | 12 | 8.2 |
| 28 | 8.0 | 223 | 8.2 | 12 | 9.1 | 9.1 | 3.1 | 233 | 10 | 393 | 12 | 184 |
| 29 | 8.0 | 217 | 8.2 | 13 | 8.9 | 9.5 | 4.1 | 29 | 10 | 9.8 | 12 | 10 |
| 30 | 263 | 11 | 8.2 | 13 | --- | 8.8 | 8.5 | 241 | 10 | 9.1 | 11 | 10 |
| 31 | 23 | --- | 8.2 | 14 | --- | 8.5 | --- | 208 | --- | 15 | 12 | --- |
| TOTAL | 1385.8 | 11472.4 | 1498.5 | 22735.3 | 459.8 | 288.7 | 174.4 | 11370.4 | 9309 | 1800.2 | 3943.2 | 8454.8 |
| MEAN | 44.7 | 382 | 48.3 | 733 | 15.9 | 9.31 | 5.81 | 367 | 310 | 58.1 | 127 | 282 |
| MAX | 337 | 5350 | 739 | 12800 | 154 | 11 | 11 | 3550 | 1100 | 441 | 1880 | 3380 |
| MIN | 7.7 | 4.9 | 5.2 | 5.7 | 8.9 | 8.5 | 3.1 | 3.2 | 10 | 9.1 | 7.7 | 8.2 |
| AC-FT | 2750 | 22760 | 2970 | 45100 | 912 | 573 | 346 | 22550 | 18460 | 3570 | 7820 | 16770 |
| CFSM | .21 | 1.83 | .23 | 3.51 | .08 | .04 | .03 | 1.75 | 1.48 | .28 | .61 | 1.35 |
| IN. | .25 | 2.04 | .27 | 4.05 | .08 | .05 | .03 | 2.02 | 1.66 | .32 | .70 | 1.50 |

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1987 - 1992, BY WATER YEAR (WY)

| | MEAN | 352 | 785 | 608 | 211 | 103 | 73.5 | 50.2 | 125 | 222 | 133 | 199 | 442 |
|------|------|------|------|------|------|------|------|------|------|------|------|------|-----|
| MAX | 842 | 2732 | 2603 | 733 | 242 | 299 | 112 | 367 | 784 | 339 | 718 | 1612 | |
| (WY) | 1991 | 1988 | 1988 | 1992 | 1989 | 1989 | 1987 | 1992 | 1987 | 1988 | 1988 | 1989 | |
| MIN | 44.7 | 88.6 | 30.0 | 5.05 | 4.52 | 6.45 | 5.81 | 7.62 | 7.72 | 57.9 | 27.4 | 29.7 | |
| (WY) | 1992 | 1990 | 1990 | 1990 | 1990 | 1990 | 1992 | 1990 | 1991 | 1990 | 1991 | 1990 | |

SUMMARY STATISTICS

FOR 1991 CALENDAR YEAR

FOR 1992 WATER YEAR

WATER YEARS 1987 - 1992

| | | | |
|--------------------------|---------|---------|--------|
| ANNUAL TOTAL | 29801.9 | 72892.5 | |
| ANNUAL MEAN | 81.6 | 199 | 274 |
| HIGHEST ANNUAL MEAN | | | 652 |
| LOWEST ANNUAL MEAN | | | 44.5 |
| HIGHEST DAILY MEAN | 5350 | Nov 8 | 51200 |
| LOWEST DAILY MEAN | 3.4 | Sep 24 | 2.1 |
| ANNUAL SEVEN-DAY MINIMUM | 4.9 | Aug 12 | 2.2 |
| INSTANTANEOUS PEAK FLOW | | | 76300 |
| INSTANTANEOUS PEAK STAGE | | | 33.32 |
| ANNUAL RUNOFF (AC-FT) | 59110 | 144600 | 198900 |
| ANNUAL RUNOFF (CFSM) | .39 | .95 | 1.31 |
| ANNUAL RUNOFF (INCHES) | 5.30 | 12.97 | 17.84 |
| 10 PERCENT EXCEEDS | 195 | 393 | 449 |
| 50 PERCENT EXCEEDS | 8.9 | 10 | 12 |
| 90 PERCENT EXCEEDS | 5.6 | 5.6 | 5.1 |

RIO GRANDE DE LOIZA BASIN

50059050 RIO GRANDE DE LOIZA BELOW DAMSITE, PR--Continued

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993
DAILY MEAN VALUES

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|-------|--------|---------|--------|--------|-------|-------|-------|--------|--------|---------|--------|--------|
| 1 | 103 | 122 | 298 | 360 | 8.2 | 7.7 | 5.4 | 810 | 9.1 | 3.9 | 9.1 | 5.6 |
| 2 | 10 | 6.9 | 388 | 334 | 193 | 7.5 | 5.4 | 1090 | 8.7 | 178 | 198 | 353 |
| 3 | 9.0 | 9.2 | 9.6 | 5.3 | 12 | 8.1 | 5.1 | 7.1 | 8.5 | 155 | 8.5 | 5.9 |
| 4 | 9.5 | 348 | 245 | 263 | 10 | 8.2 | 5.3 | 7.1 | 8.2 | 6.7 | 7.8 | 5.7 |
| 5 | 9.9 | 214 | 142 | 5.0 | 10 | 8.3 | 5.2 | 127 | 8.7 | 3.9 | 7.8 | 7.4 |
| 6 | 277 | 207 | 12 | 4.6 | 10 | 7.8 | 5.1 | 120 | 8.3 | 3.9 | 179 | 303 |
| 7 | 275 | 129 | 180 | 234 | 9.6 | 7.7 | 4.8 | 9.2 | 8.5 | 264 | 7.7 | 7.0 |
| 8 | 235 | 8.3 | 9.9 | 293 | 9.2 | 7.5 | 5.9 | 8.9 | 8.7 | 138 | 7.1 | 5.8 |
| 9 | 11 | 7.5 | 9.4 | 4.9 | 8.4 | 7.6 | 5.4 | 287 | 8.6 | 51 | 7.3 | 237 |
| 10 | 286 | 151 | 9.3 | 188 | 8.1 | 7.1 | 4.8 | 243 | 8.3 | 101 | 7.4 | 6.8 |
| 11 | 13 | 162 | 9.2 | 5.6 | 8.0 | 7.3 | 4.8 | 15 | 8.1 | 11600 | 7.1 | 406 |
| 12 | 8.1 | 7.4 | 8.9 | 5.7 | 8.8 | 7.2 | 6.4 | 14 | 8.2 | 600 | 6.5 | 7.5 |
| 13 | 8.2 | 7.3 | 11 | 5.7 | 9.8 | 7.0 | 15 | 14 | 8.1 | 600 | 6.5 | 7.3 |
| 14 | 8.2 | 7.5 | 200 | 5.7 | 8.2 | 6.8 | 6.8 | 1470 | 363 | 205 | 217 | 7.4 |
| 15 | 8.2 | 212 | 271 | 5.8 | 8.2 | 7.0 | 6.3 | 201 | 261 | 170 | 6.9 | 7.5 |
| 16 | 9.3 | 8.4 | 10 | 5.9 | 8.2 | 7.8 | 6.2 | 12 | 7.8 | 411 | 935 | 8.6 |
| 17 | 9.2 | 177 | 10 | 153 | 8.4 | 7.5 | 6.0 | 12 | 6.5 | 167 | 252 | 253 |
| 18 | 8.9 | 1070 | 151 | 5.4 | 8.2 | 6.7 | 6.3 | 12 | 6.2 | 10 | 5.7 | 611 |
| 19 | 89 | 114 | 11 | 5.6 | 8.0 | 6.5 | 6.2 | 142 | 4200 | 173 | 5.4 | 6.9 |
| 20 | 9.5 | 187 | 9.7 | 5.8 | 7.7 | 6.2 | 7.4 | 14 | 1870 | 9.5 | 4.9 | 203 |
| 21 | 8.9 | 259 | 9.7 | 6.1 | 7.6 | 6.1 | 8.8 | 14 | 274 | 9.6 | 5.1 | 5.6 |
| 22 | 139 | 184 | 12 | 265 | 7.7 | 6.2 | 5.4 | 14 | 388 | 1410 | 330 | 5.6 |
| 23 | 8.0 | 7.4 | 178 | 9.0 | 7.5 | 6.0 | 4.1 | 15 | 7.7 | 2130 | 341 | 490 |
| 24 | 8.4 | 243 | 13 | 8.0 | 7.5 | 11 | 3.7 | 17 | 213 | 1120 | 5.3 | 11 |
| 25 | 8.3 | 6.3 | 12 | 9.6 | 7.5 | 7.3 | 3.6 | 15 | 5.2 | 215 | 217 | 337 |
| 26 | 175 | 6.1 | 1920 | 8.8 | 7.6 | 6.0 | 3.8 | 401 | 4.5 | 520 | 5.4 | 6.1 |
| 27 | 6.0 | 694 | 245 | 227 | 7.8 | 5.7 | 4.2 | 18 | 4.0 | 192 | 5.2 | 6.2 |
| 28 | 5.7 | 3020 | 195 | 9.5 | 7.9 | 5.6 | 3.6 | 272 | 3.7 | 182 | 5.5 | 294 |
| 29 | 5.7 | 376 | 430 | --- | --- | 5.5 | 6.4 | 11 | 224 | 10 | 9.2 | 6.0 |
| 30 | 15 | 3430 | 815 | 8.1 | --- | 5.3 | 5.1 | 10 | 4.3 | 180 | 6.7 | 654 |
| 31 | 16 | --- | 410 | 7.8 | --- | 5.4 | --- | 10 | --- | 9.5 | 5.7 | --- |
| TOTAL | 1793.0 | 11381.3 | 6005.7 | 2884.9 | 423.1 | 217.6 | 172.5 | 5412.3 | 7952.9 | 20829.0 | 2822.8 | 4270.9 |
| MEAN | 57.8 | 379 | 194 | 93.1 | 15.1 | 7.02 | 5.75 | 175 | 265 | 672 | 91.1 | 142 |
| MAX | 286 | 3430 | 1920 | 430 | 193 | 11 | 15 | 1470 | 4200 | 11600 | 935 | 654 |
| MIN | 5.7 | 6.1 | 8.9 | 4.6 | 7.5 | 5.3 | 3.6 | 7.1 | 3.7 | 3.9 | 4.9 | 5.6 |
| AC-FT | 3560 | 22570 | 11910 | 5720 | 839 | 432 | 342 | 10740 | 15770 | 41310 | 5600 | 8470 |
| CFSM | .28 | 1.82 | .93 | .45 | .07 | .03 | .03 | .84 | 1.27 | 3.21 | .44 | .68 |
| IN. | .32 | 2.03 | 1.07 | .51 | .08 | .04 | .03 | .96 | 1.42 | 3.71 | .50 | .76 |

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1987 - 1993, BY WATER YEAR (WY)

| | MEAN | 303 | 717 | 539 | 195 | 90.3 | 64.0 | 43.9 | 132 | 228 | 210 | 184 | 399 |
|------|------|------|------|------|------|------|------|------|------|------|------|------|-----|
| MAX | 842 | 2732 | 2603 | 733 | 242 | 299 | 112 | 367 | 784 | 672 | 718 | 1612 | |
| (WY) | 1991 | 1988 | 1988 | 1992 | 1989 | 1989 | 1987 | 1992 | 1987 | 1993 | 1988 | 1989 | |
| MIN | 44.7 | 88.6 | 30.0 | 5.05 | 4.52 | 6.45 | 5.75 | 7.62 | 7.72 | 57.9 | 27.4 | 29.7 | |
| (WY) | 1992 | 1990 | 1990 | 1990 | 1990 | 1990 | 1993 | 1990 | 1991 | 1990 | 1991 | 1990 | |

| SUMMARY STATISTICS | FOR 1992 CALENDAR YEAR | | | FOR 1993 WATER YEAR | | | WATER YEARS 1987 - 1993 | | |
|--------------------------|------------------------|--|--|---------------------|--|--|-------------------------|--|--|
| ANNUAL TOTAL | 77715.8 | | | 64166.0 | | | 258 | | |
| ANNUAL MEAN | 212 | | | 176 | | | 652 | | |
| HIGHEST ANNUAL MEAN | | | | | | | 44.5 | | |
| LOWEST ANNUAL MEAN | | | | | | | 1988 | | |
| HIGHEST DAILY MEAN | 12800 | | | Jan 5 | | | 51200 | | |
| LOWEST DAILY MEAN | 3.1 | | | Apr 28 | | | 2.1 | | |
| ANNUAL SEVEN-DAY MINIMUM | 3.7 | | | Apr 23 | | | 2.2 | | |
| INSTANTANEOUS PEAK FLOW | | | | 45100 | | | Jul 11 | | |
| INSTANTANEOUS PEAK STAGE | | | | 27.69 | | | Jul 11 | | |
| ANNUAL RUNOFF (AC-FT) | 154100 | | | 127300 | | | 186900 | | |
| ANNUAL RUNOFF (CFSM) | 1.02 | | | .84 | | | 1.23 | | |
| ANNUAL RUNOFF (INCHES) | 13.83 | | | 11.42 | | | 16.78 | | |
| 10 PERCENT EXCEEDS | 395 | | | 335 | | | 427 | | |
| 50 PERCENT EXCEEDS | 11 | | | 8.8 | | | 11 | | |
| 90 PERCENT EXCEEDS | 6.2 | | | 5.4 | | | 5.2 | | |

RIO GRANDE DE LOIZA BASIN

50059050 RIO GRANDE DE LOIZA BELOW DAMSITE, PR--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.-- Water years 1987 to current year.

PERIOD OF DAILY RECORD.--

SUSPENDED-SEDIMENT DISCHARGE: December 1986 to September 1993.

INSTRUMENTATION.--- Automatic sediment sampler.

EXTREMES FOR PERIOD OF DAILY RECORD.--

SEDIMENT CONCENTRATION: Maximum daily mean, 946 mg/L Jan. 06, 1993; Minimum daily mean, 1 mg/L several days.

SEDIMENT LOADS: Maximum daily mean, 98,600 tons (89,400 tonnes) Jan. 05, 1993; Minimum daily mean, 0.03 tons (0.02 tonnes) several days.

EXTREMES FOR WATER YEARS 1992-93.--

SEDIMENT CONCENTRATION: Maximum daily mean, 274 mg/l October 21, 1990; minimum daily mean, 1 mg/l several days.

SEDIMENT LOADS: Maximum daily mean, 4,920 tons (4,480 tonnes) October 21, 1990; minimum daily mean, 0.03 tons (0.02 tonnes) several days.

| Water Year | Suspended-sediment concentration (mg/L) | | Suspended-sediment discharge (tons per day) | |
|---------------|---|------------------|---|--------------------|
| | maximum | minimum | maximum | minimum |
| 1992 | 946 (Jan. 06) | 5 (Several days) | 98,600 (Jan. 05) | .05 (Several days) |
| 1993 | 831 (July 11) | 5 (Several days) | 55,100 (July 11) | .07 (Several days) |

SEDIMENT DISCHARGE, SUSPENDED (TONS/DAY), WATER YEAR OCTOBER 1991 TO SEPTEMBER 1992

| DAY | MEAN DISCHARGE (CFS) | MEAN CONCEN- TRATION (MG/L) | SEDIMENT DISCHARGE (TONS/DAY) | MEAN DISCHARGE (CFS) | MEAN CONCEN- TRATION (MG/L) | SEDIMENT DISCHARGE (TONS/DAY) | MEAN DISCHARGE (CFS) | MEAN CONCEN- TRATION (MG/L) | SEDIMENT DISCHARGE (TONS/DAY) |
|-------|----------------------------|--------------------------------------|-------------------------------------|----------------------------|--------------------------------------|-------------------------------------|----------------------------|--------------------------------------|-------------------------------------|
| | OCTOBER | | | NOVEMBER | | | DECEMBER | | |
| 1 | 11 | 23 | .76 | 20 | 27 | 1.4 | 10 | 22 | .63 |
| 2 | 8.9 | 41 | 512 | 23 | 27 | 1.7 | 739 | 53 | 761 |
| 3 | 337 | 31 | 90 | 21 | 25 | 1.4 | 6.2 | 17 | .29 |
| 4 | 15 | 26 | 1.1 | 19 | 25 | 1.3 | 5.7 | 17 | .26 |
| 5 | 16 | 26 | 1.1 | 19 | 25 | 1.3 | 5.2 | 17 | .24 |
| 6 | 15 | 26 | 1.1 | 18 | 25 | 1.2 | 215 | 31 | .84 |
| 7 | 15 | 25 | 1.1 | 1070 | 84 | 919 | 6.8 | 19 | .34 |
| 8 | 16 | 25 | 1.1 | 5350 | 304 | 8270 | 6.6 | 18 | .33 |
| 9 | 16 | 23 | .98 | 1570 | 82 | 1050 | 6.9 | 18 | .34 |
| 10 | 16 | 21 | .88 | 694 | 52 | 261 | 7.2 | 18 | .35 |
| 11 | 16 | 20 | .85 | 108 | 27 | 44 | 7.5 | 18 | .37 |
| 12 | 16 | 20 | .86 | 187 | 33 | 93 | 7.3 | 18 | .35 |
| 13 | 196 | 34 | 481 | 64 | 19 | 18 | 7.0 | 18 | .34 |
| 14 | 8.2 | 14 | .31 | 140 | 26 | 37 | 6.8 | 18 | .34 |
| 15 | 7.9 | 10 | .22 | 4.9 | 17 | .22 | 185 | 37 | .85 |
| 16 | 7.9 | 10 | .22 | 4.9 | 16 | .21 | 7.9 | 24 | .49 |
| 17 | 7.8 | 10 | .22 | 231 | 85 | 91 | 7.5 | 22 | .43 |
| 18 | 7.7 | 10 | .21 | 5.0 | 88 | 1.2 | 7.5 | 20 | .40 |
| 19 | 7.8 | 10 | .22 | 4.9 | 86 | 1.2 | 7.5 | 20 | .40 |
| 20 | 7.8 | 10 | .22 | 5.1 | 83 | 1.1 | 7.8 | 20 | .43 |
| 21 | 8.0 | 10 | .22 | 400 | 96 | 228 | 155 | 30 | .47 |
| 22 | 7.8 | 10 | .22 | 318 | 153 | 125 | 8.6 | 21 | .48 |
| 23 | 7.9 | 10 | .22 | 5.6 | 52 | .98 | 8.2 | 20 | .43 |
| 24 | 8.0 | 10 | .23 | 210 | 54 | 89 | 8.2 | 17 | .38 |
| 25 | 8.0 | 10 | .23 | 220 | 40 | 87 | 8.3 | 13 | .30 |
| 26 | 8.0 | 10 | .23 | 11 | 24 | .79 | 8.5 | 11 | .26 |
| 27 | 8.0 | 10 | .22 | 298 | 39 | 135 | 8.5 | 11 | .24 |
| 28 | 8.0 | 10 | .22 | 223 | 36 | 77 | 8.2 | 10 | .21 |
| 29 | 8.0 | 10 | .23 | 217 | 36 | 71 | 8.2 | 9 | .20 |
| 30 | 263 | 28 | 509 | 11 | 24 | .82 | 8.2 | 9 | .20 |
| 31 | 23 | 29 | 2.0 | --- | --- | --- | 8.2 | 8 | .19 |
| TOTAL | 1106.7 | --- | 1607.47 | 11472.4 | --- | 11609.82 | 1498.5 | --- | 986.22 |

RIO GRANDE DE LOIZA BASIN

50059050 RIO GRANDE DE LOIZA BELOW DAMSITE LOIZA, PR--Continued

SEDIMENT DISCHARGE, SUSPENDED (TONS/DAY), WATER YEAR OCTOBER 1991 TO SEPTEMBER 1992

| DAY | MEAN DISCHARGE (CFS) | MEAN CONCEN- TRATION (MG/L) | SEDIMENT DISCHARGE (TONS/DAY) | MEAN DISCHARGE (CFS) | MEAN CONCEN- TRATION (MG/L) | SEDIMENT DISCHARGE (TONS/DAY) | MEAN DISCHARGE (CFS) | MEAN CONCEN- TRATION (MG/L) | SEDIMENT DISCHARGE (TONS/DAY) |
|---------|----------------------------|--------------------------------------|-------------------------------------|----------------------------|--------------------------------------|-------------------------------------|----------------------------|--------------------------------------|-------------------------------------|
| JANUARY | | | FEBRUARY | | | MARCH | | | |
| 1 | 8.2 | 6 | .15 | 14 | 16 | .58 | 9.3 | 5 | .13 |
| 2 | 8.2 | 5 | .12 | 14 | 16 | .59 | 9.3 | 5 | .12 |
| 3 | 8.3 | 4 | .10 | 14 | 16 | .60 | 9.5 | 5 | .13 |
| 4 | 8.9 | 4 | .10 | 15 | 15 | .59 | 9.7 | 6 | .16 |
| 5 | 12800 | 753 | 98600 | 16 | 13 | .54 | 9.7 | 7 | .18 |
| 6 | 7210 | 946 | 30800 | 17 | 10 | .46 | 9.6 | 8 | .21 |
| 7 | 479 | 363 | 475 | 154 | 8 | 3.6 | 9.4 | 10 | .24 |
| 8 | 415 | 264 | 300 | 13 | 8 | .27 | 9.5 | 10 | .26 |
| 9 | 170 | 248 | 124 | 12 | 8 | .26 | 9.3 | 10 | .26 |
| 10 | 637 | 139 | 722 | 11 | 8 | .25 | 9.3 | 10 | .26 |
| 11 | 142 | 126 | 60 | 11 | 8 | .23 | 9.3 | 10 | .25 |
| 12 | 22 | 99 | 6.3 | 10 | 7 | .21 | 8.9 | 9 | .22 |
| 13 | 19 | 97 | 5.1 | 9.7 | 6 | .17 | 8.9 | 8 | .20 |
| 14 | 269 | 100 | 192 | 9.3 | 6 | .16 | 9.3 | 8 | .20 |
| 15 | 8.9 | 88 | 2.1 | 9.3 | 6 | .16 | 9.3 | 8 | .20 |
| 16 | 125 | 85 | 44 | 9.3 | 6 | .16 | 9.3 | 9 | .22 |
| 17 | 5.7 | 73 | 1.2 | 9.3 | 6 | .16 | 10 | 9 | .27 |
| 18 | 187 | 69 | 58 | 9.1 | 5 | .14 | 11 | 9 | .27 |
| 19 | 6.5 | 54 | .97 | 9.2 | 5 | .12 | 10 | 8 | .24 |
| 20 | 6.7 | 44 | .79 | 11 | 6 | .19 | 9.9 | 8 | .21 |
| 21 | 6.8 | 34 | .61 | 9.3 | 6 | .16 | 8.9 | 8 | .20 |
| 22 | 7.0 | 26 | .48 | 9.3 | 26 | .64 | 8.9 | 8 | .20 |
| 23 | 7.3 | 22 | .42 | 9.3 | 6 | .16 | 8.9 | 8 | .20 |
| 24 | 7.8 | 21 | .43 | 9.3 | 6 | .16 | 8.9 | 8 | .20 |
| 25 | 94 | 20 | 5.6 | 9.3 | 6 | .16 | 8.9 | 8 | .20 |
| 26 | 12 | 20 | .62 | 9.2 | 6 | .15 | 8.9 | 8 | .20 |
| 27 | 12 | 20 | .63 | 8.9 | 6 | .14 | 8.9 | 7 | .18 |
| 28 | 12 | 19 | .61 | 9.1 | 5 | .14 | 9.1 | 7 | .18 |
| 29 | 13 | 18 | .62 | 8.9 | 6 | .14 | 9.5 | 7 | .18 |
| 30 | 13 | 16 | .58 | --- | --- | --- | 8.8 | 6 | .15 |
| 31 | 14 | 16 | .58 | --- | --- | --- | 8.5 | 6 | .14 |
| TOTAL | 22735.3 | --- | 131403.11 | 459.8 | --- | 11.29 | 288.7 | --- | 6.26 |

RIO GRANDE DE LOIZA BASIN

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50059050 RIO GRANDE DE LOIZA BELOW DAMSITE LOIZA, PR--Continued

SEDIMENT DISCHARGE, SUSPENDED (TONS/DAY), WATER YEAR OCTOBER 1991 TO SEPTEMBER 1992

| DAY | MEAN DISCHARGE (CFS) | MEAN CONCEN- TRATION (MG/L) | SEDIMENT DISCHARGE (TONS/DAY) | MEAN DISCHARGE (CFS) | MEAN CONCEN- TRATION (MG/L) | SEDIMENT DISCHARGE (TONS/DAY) | MEAN DISCHARGE (CFS) | MEAN CONCEN- TRATION (MG/L) | SEDIMENT DISCHARGE (TONS/DAY) |
|-------|----------------------------|--------------------------------------|-------------------------------------|----------------------------|--------------------------------------|-------------------------------------|----------------------------|--------------------------------------|-------------------------------------|
| APRIL | | | | MAY | | | JUNE | | |
| 1 | 8.4 | 7 | .15 | 5.5 | 8 | .13 | 249 | 57 | 140 |
| 2 | 8.1 | 8 | .18 | 13 | 9 | .31 | 725 | 58 | 1200 |
| 3 | 8.0 | 10 | .20 | 4.2 | 9 | .10 | 475 | 45 | 517 |
| 4 | 7.5 | 12 | .24 | 3.5 | 10 | .08 | 628 | 51 | 741 |
| 5 | 7.4 | 10 | .20 | 3.2 | 10 | .09 | 14 | 25 | 1.0 |
| 6 | 7.2 | 7 | .14 | 8.8 | 9 | .20 | 232 | 42 | 114 |
| 7 | 8.3 | 5 | .11 | 5.8 | 9 | .15 | 469 | 46 | 456 |
| 8 | 8.2 | 5 | .12 | 3.6 | 9 | .08 | 27 | 28 | 2.4 |
| 9 | 7.4 | 5 | .10 | 3.8 | 9 | .09 | 827 | 81 | 988 |
| 10 | 6.2 | 5 | .08 | 5.1 | 10 | .14 | 358 | 43 | 375 |
| 11 | 5.5 | 5 | .07 | 3.6 | 10 | .10 | 400 | 39 | 433 |
| 12 | 4.7 | 5 | .06 | 3.6 | 10 | .09 | 909 | 71 | 1240 |
| 13 | 4.5 | 5 | .06 | 3.4 | 10 | .10 | 788 | 87 | 587 |
| 14 | 3.7 | 5 | .05 | 3.5 | 10 | .09 | 410 | 47 | 513 |
| 15 | 3.8 | 5 | .06 | 3.4 | 10 | .10 | 295 | 41 | 458 |
| 16 | 4.4 | 5 | .06 | 8.1 | 10 | .21 | 237 | 38 | 222 |
| 17 | 4.4 | 5 | .06 | 5.3 | 10 | .15 | 485 | 49 | 683 |
| 18 | 4.7 | 5 | .06 | 17 | 10 | .45 | 22 | 25 | 1.6 |
| 19 | 11 | 5 | .16 | 222 | 42 | 91 | 21 | 19 | 1.1 |
| 20 | 7.4 | 5 | .11 | 11 | 97 | 3.0 | 240 | 17 | 11 |
| 21 | 4.7 | 5 | .06 | 10 | 96 | 2.7 | 1100 | 65 | 1360 |
| 22 | 4.4 | 5 | .06 | 10 | 92 | 2.5 | 21 | 10 | .58 |
| 23 | 4.1 | 5 | .06 | 2010 | 157 | 1530 | 15 | 10 | .41 |
| 24 | 4.0 | 5 | .06 | 3400 | 365 | 3230 | 302 | 34 | 134 |
| 25 | 3.7 | 5 | .05 | 864 | 354 | 1040 | 10 | 27 | .75 |
| 26 | 3.7 | 6 | .07 | 3550 | 270 | 3550 | 10 | 23 | .61 |
| 27 | 3.3 | 7 | .06 | 478 | 178 | 217 | 10 | 19 | .50 |
| 28 | 3.1 | 7 | .06 | 233 | 42 | 104 | 10 | 16 | .44 |
| 29 | 4.1 | 7 | .08 | 29 | 29 | 2.5 | 10 | 13 | .36 |
| 30 | 8.5 | 7 | .15 | 241 | 38 | 77 | 10 | 11 | .28 |
| 31 | --- | --- | --- | 208 | 43 | 80 | --- | --- | --- |
| TOTAL | 174.4 | --- | 2.98 | 11370.4 | --- | 9932.36 | 9309 | --- | 10182.03 |

RIO GRANDE DE LOIZA BASIN

50059050 RIO GRANDE DE LOIZA BELOW DAMSITE LOIZA, PR--Continued

SEDIMENT DISCHARGE, SUSPENDED (TONS/DAY), WATER YEAR OCTOBER 1991 TO SEPTEMBER 1992

| DAY | MEAN DISCHARGE (CFS) | MEAN CONCEN- TRATION (MG/L) | SEDIMENT DISCHARGE (TONS/DAY) | MEAN DISCHARGE (CFS) | MEAN CONCEN- TRATION (MG/L) | SEDIMENT DISCHARGE (TONS/DAY) | MEAN DISCHARGE (CFS) | MEAN CONCEN- TRATION (MG/L) | SEDIMENT DISCHARGE (TONS/DAY) |
|-------|----------------------------|--------------------------------------|-------------------------------------|----------------------------|--------------------------------------|-------------------------------------|----------------------------|--------------------------------------|-------------------------------------|
| JULY | | | AUGUST | | | SEPTEMBER | | | |
| 1 | 11 | 10 | .29 | 10 | 11 | .29 | 11 | 6 | .20 |
| 2 | 11 | 10 | .30 | 9.8 | 10 | .27 | 12 | 6 | .19 |
| 3 | 12 | 10 | .30 | 9.6 | 10 | .26 | 11 | 6 | .18 |
| 4 | 12 | 10 | .31 | 9.7 | 10 | .27 | 11 | 6 | .18 |
| 5 | 129 | 10 | 3.4 | 1880 | 21 | 252 | 11 | 6 | .19 |
| 6 | 12 | 10 | .31 | 220 | 6 | 3.8 | 393 | 10 | .45 |
| 7 | 11 | 10 | .30 | 366 | 28 | 360 | 11 | 11 | .32 |
| 8 | 11 | 10 | .32 | 9.4 | 11 | .25 | 343 | 27 | 324 |
| 9 | 165 | 26 | 51 | 288 | 108 | 204 | 11 | 9 | .27 |
| 10 | 13 | 10 | .34 | 11 | 275 | 8.5 | 9.7 | 10 | .25 |
| 11 | 12 | 10 | .32 | 452 | 147 | 163 | 9.7 | 10 | .26 |
| 12 | 12 | 10 | .32 | 7.7 | 69 | 1.4 | 9.7 | 10 | .26 |
| 13 | 12 | 10 | .33 | 8.0 | 50 | 1.0 | 9.7 | 10 | .26 |
| 14 | 12 | 10 | .33 | 11 | 41 | 1.3 | 9.7 | 10 | .26 |
| 15 | 12 | 10 | .32 | 468 | 44 | 136 | 10 | 10 | .27 |
| 16 | 12 | 10 | .32 | 10 | 34 | .95 | 10 | 10 | .28 |
| 17 | 200 | 25 | 63 | 10 | 27 | .74 | 500 | 6 | 14 |
| 18 | 14 | 10 | .38 | 11 | 21 | .62 | 9.5 | 2 | .05 |
| 19 | 12 | 8 | .26 | 11 | 19 | .58 | 551 | 36 | 528 |
| 20 | 12 | 7 | .22 | 12 | 16 | .48 | 3380 | 159 | 5760 |
| 21 | 184 | 21 | 53 | 11 | 12 | .35 | 2190 | 125 | 1750 |
| 22 | 441 | 11 | 23 | 12 | 10 | .32 | 283 | 40 | 245 |
| 23 | 10 | 10 | .31 | 12 | 10 | .32 | 272 | 100 | 276 |
| 24 | 12 | 10 | .38 | 12 | 10 | .32 | 11 | 106 | 3.0 |
| 25 | 10 | 10 | .27 | 11 | 10 | .29 | 155 | 85 | 73 |
| 26 | 9.3 | 10 | .26 | 12 | 9 | .28 | 8.6 | 70 | 1.6 |
| 27 | 10 | 10 | .28 | 12 | 9 | .29 | 8.2 | 54 | 1.2 |
| 28 | 393 | 25 | 138 | 12 | 8 | .26 | 184 | 66 | 86 |
| 29 | 9.8 | 18 | .47 | 12 | 8 | .24 | 10 | 64 | 1.8 |
| 30 | 9.1 | 17 | .41 | 11 | 7 | .22 | 10 | 53 | 1.4 |
| 31 | 15 | 14 | .55 | 12 | 7 | .21 | --- | --- | --- |
| TOTAL | 1800.2 | --- | 339.60 | 3943.2 | --- | 1138.81 | 8454.8 | --- | 9113.42 |
| YEAR | 72613.4 | | 176333.37 | | | | | | |

RIO GRANDE DE LOIZA BASIN

50059050 RIO GRANDE DE LOIZA BELOW DAMSITE LOIZA, PR--Continued

SEDIMENT DISCHARGE, SUSPENDED (TONS/DAY), WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993

| DAY | MEAN DISCHARGE (CFS) | MEAN CONCEN- TRATION (MG/L) | SEDIMENT DISCHARGE (TONS/DAY) | MEAN DISCHARGE (CFS) | MEAN CONCEN- TRATION (MG/L) | SEDIMENT DISCHARGE (TONS/DAY) | MEAN DISCHARGE (CFS) | MEAN CONCEN- TRATION (MG/L) | SEDIMENT DISCHARGE (TONS/DAY) |
|---------|----------------------------|--------------------------------------|-------------------------------------|----------------------------|--------------------------------------|-------------------------------------|----------------------------|--------------------------------------|-------------------------------------|
| OCTOBER | | | NOVEMBER | | | DECEMBER | | | |
| 1 | 103 | 27 | 31 | 122 | 26 | 32 | 298 | 281 | 367 |
| 2 | 10 | 22 | .57 | 6.9 | 13 | .28 | 388 | 268 | 372 |
| 3 | 9.0 | 20 | .49 | 9.2 | 12 | .46 | 9.6 | 58 | 1.8 |
| 4 | 9.5 | 21 | .56 | 348 | 42 | 247 | 245 | 87 | 167 |
| 5 | 9.9 | 21 | .55 | 214 | 26 | 107 | 142 | 20 | 32 |
| 6 | 277 | 40 | 144 | 207 | 21 | 93 | 12 | 22 | .83 |
| 7 | 275 | 35 | 83 | 129 | 27 | 34 | 180 | 31 | 46 |
| 8 | 235 | 33 | 81 | 8.3 | 16 | .41 | 9.9 | 20 | .56 |
| 9 | 11 | 22 | .64 | 7.5 | 14 | .27 | 9.4 | 20 | .52 |
| 10 | 286 | 37 | 80 | 151 | 25 | 37 | 9.3 | 20 | .50 |
| 11 | 13 | 18 | 1.0 | 162 | 24 | 62 | 9.2 | 20 | .49 |
| 12 | 8.1 | 16 | .35 | 7.4 | 15 | .29 | 8.9 | 20 | .48 |
| 13 | 8.2 | 16 | .36 | 7.3 | 15 | .29 | 11 | 20 | .62 |
| 14 | 8.2 | 16 | .36 | 7.5 | 15 | .30 | 200 | 30 | 86 |
| 15 | 8.2 | 16 | .36 | 212 | 27 | 57 | 271 | 64 | 115 |
| 16 | 9.3 | 16 | .44 | 8.4 | 18 | .42 | 10 | 20 | .54 |
| 17 | 9.2 | 16 | .39 | 177 | 28 | 50 | 10 | 20 | .54 |
| 18 | 8.9 | 16 | .38 | 1070 | 58 | 498 | 151 | 27 | 32 |
| 19 | 89 | 29 | 23 | 114 | 49 | 22 | 11 | 21 | .59 |
| 20 | 9.5 | 43 | 1.1 | 187 | 31 | 53 | 9.7 | 20 | .52 |
| 21 | 8.9 | 38 | .90 | 259 | 27 | 121 | 9.7 | 20 | .52 |
| 22 | 139 | 30 | 52 | 184 | 28 | 44 | 12 | 20 | .68 |
| 23 | 8.0 | 16 | .36 | 7.4 | 18 | .37 | 178 | 25 | 35 |
| 24 | 8.4 | 16 | .39 | 243 | 25 | 113 | 13 | 22 | .75 |
| 25 | 8.3 | 16 | .34 | 6.3 | 15 | .25 | 12 | 20 | .68 |
| 26 | 175 | 21 | 62 | 6.1 | 15 | .25 | 1920 | 76 | 1050 |
| 27 | 6.0 | 12 | .19 | 694 | 54 | 179 | 245 | 33 | 65 |
| 28 | 5.7 | 11 | .17 | 3020 | 105 | 1880 | 195 | 25 | 85 |
| 29 | 5.7 | 10 | .16 | 376 | 31 | 202 | 201 | 28 | 96 |
| 30 | 15 | 17 | 1.3 | 3430 | 336 | 3980 | 815 | 61 | 207 |
| 31 | 16 | 20 | 1.4 | --- | --- | --- | 410 | 36 | 134 |
| TOTAL | 1793.0 | --- | 568.76 | 11381.3 | --- | 7814.59 | 6005.7 | --- | 2899.62 |

RIO GRANDE DE LOIZA BASIN

50059050 RIO GRANDE DE LOIZA BELOW DAMSITE LOIZA, PR--Continued

SEDIMENT DISCHARGE, SUSPENDED (TONS/DAY), WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993

| DAY | MEAN DISCHARGE (CFS) | MEAN CONCEN- TRATION (MG/L) | SEDIMENT DISCHARGE (TONS/DAY) | MEAN DISCHARGE (CFS) | MEAN CONCEN- TRATION (MG/L) | SEDIMENT DISCHARGE (TONS/DAY) | MEAN DISCHARGE (CFS) | MEAN CONCEN- TRATION (MG/L) | SEDIMENT DISCHARGE (TONS/DAY) |
|---------|----------------------------|--------------------------------------|-------------------------------------|----------------------------|--------------------------------------|-------------------------------------|----------------------------|--------------------------------------|-------------------------------------|
| JANUARY | | | FEBRUARY | | | MARCH | | | |
| 1 | 360 | 34 | 133 | 8.2 | 17 | .38 | 7.7 | 6 | .13 |
| 2 | 334 | 29 | 188 | 193 | 27 | .49 | 7.5 | 6 | .13 |
| 3 | 5.3 | 15 | .22 | 12 | 23 | .84 | 8.1 | 7 | .16 |
| 4 | 263 | 23 | 121 | 10 | 21 | .58 | 8.2 | 7 | .15 |
| 5 | 5.0 | 16 | .20 | 10 | 20 | .54 | 8.3 | 7 | .15 |
| 6 | 4.6 | 12 | .15 | 10 | 20 | .53 | 7.8 | 7 | .14 |
| 7 | 234 | 27 | 50 | 9.6 | 25 | .64 | 7.7 | 7 | .14 |
| 8 | 293 | 34 | 73 | 9.2 | 35 | .83 | 7.5 | 7 | .14 |
| 9 | 4.9 | 17 | .21 | 8.4 | 39 | .88 | 7.6 | 7 | .14 |
| 10 | 188 | 24 | 69 | 8.1 | 39 | .81 | 7.1 | 7 | .14 |
| 11 | 5.6 | 10 | .15 | 8.0 | 36 | .74 | 7.3 | 7 | .14 |
| 12 | 5.7 | 10 | .16 | 8.8 | 34 | .77 | 7.2 | 7 | .14 |
| 13 | 5.7 | 10 | .16 | 9.8 | 31 | .83 | 7.0 | 7 | .13 |
| 14 | 5.7 | 10 | .16 | 8.2 | 26 | .56 | 6.8 | 7 | .12 |
| 15 | 5.8 | 10 | .16 | 8.2 | 21 | .46 | 7.0 | 7 | .12 |
| 16 | 5.9 | 10 | .16 | 8.2 | 20 | .44 | 7.8 | 7 | .14 |
| 17 | 153 | 21 | 52 | 8.4 | 18 | .41 | 7.5 | 7 | .14 |
| 18 | 5.4 | 11 | .16 | 8.2 | 15 | .32 | 6.7 | 7 | .12 |
| 19 | 5.6 | 11 | .16 | 8.0 | 11 | .23 | 6.5 | 6 | .11 |
| 20 | 5.8 | 11 | .17 | 7.7 | 10 | .21 | 6.2 | 6 | .10 |
| 21 | 6.1 | 11 | .18 | 7.6 | 9 | .19 | 6.1 | 6 | .10 |
| 22 | 265 | 22 | 126 | 7.7 | 6 | .13 | 6.2 | 6 | .10 |
| 23 | 9.0 | 19 | .47 | 7.5 | 5 | .10 | 6.0 | 6 | .09 |
| 24 | 8.0 | 16 | .34 | 7.5 | 5 | .10 | 11 | 12 | .64 |
| 25 | 9.6 | 15 | .42 | 7.5 | 5 | .11 | 7.3 | 20 | .41 |
| 26 | 8.8 | 15 | .35 | 7.6 | 6 | .12 | 6.0 | 20 | .32 |
| 27 | 227 | 26 | 70 | 7.8 | 6 | .12 | 5.7 | 20 | .30 |
| 28 | 9.5 | 20 | .54 | 7.9 | 6 | .12 | 5.6 | 20 | .30 |
| 29 | 430 | 33 | 248 | --- | --- | --- | 5.5 | 20 | .29 |
| 30 | 8.1 | 20 | .43 | --- | --- | --- | 5.3 | 20 | .29 |
| 31 | 7.8 | 19 | .40 | --- | --- | --- | 5.4 | 33 | .50 |
| TOTAL | 2884.9 | --- | 1135.35 | 423.1 | --- | 60.99 | 217.6 | --- | 6.02 |

RIO GRANDE DE LOIZA BASIN

301

50059050 RIO GRANDE DE LOIZA BELOW DAMSITE LOIZA, PR--Continued

SEDIMENT DISCHARGE, SUSPENDED (TONS/DAY), WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993

| DAY | MEAN DISCHARGE (CFS) | MEAN CONCEN- TRATION (MG/L) | SEDIMENT DISCHARGE (TONS/DAY) | MEAN DISCHARGE (CFS) | MEAN CONCEN- TRATION (MG/L) | SEDIMENT DISCHARGE (TONS/DAY) | MEAN DISCHARGE (CFS) | MEAN CONCEN- TRATION (MG/L) | SEDIMENT DISCHARGE (TONS/DAY) |
|-------|----------------------------|--------------------------------------|-------------------------------------|----------------------------|--------------------------------------|-------------------------------------|----------------------------|--------------------------------------|-------------------------------------|
| APRIL | | | MAY | | | JUNE | | | |
| 1 | 5.4 | 32 | .48 | 810 | 52 | 511 | 9.1 | 20 | .48 |
| 2 | 5.4 | 30 | .45 | 1090 | 63 | 275 | 8.7 | 18 | .43 |
| 3 | 5.1 | 27 | .37 | 7.1 | 17 | .33 | 8.5 | 17 | .40 |
| 4 | 5.3 | 25 | .34 | 7.1 | 15 | .29 | 8.2 | 17 | .38 |
| 5 | 5.2 | 23 | .32 | 127 | 25 | 41 | 8.7 | 16 | .38 |
| 6 | 5.1 | 19 | .26 | 120 | 24 | 25 | 8.3 | 16 | .36 |
| 7 | 4.8 | 13 | .18 | 9.2 | 21 | .53 | 8.5 | 16 | .37 |
| 8 | 5.9 | 10 | .16 | 8.9 | 20 | .48 | 8.7 | 16 | .38 |
| 9 | 5.4 | 10 | .15 | 287 | 33 | 58 | 8.6 | 15 | .36 |
| 10 | 4.8 | 10 | .13 | 243 | 42 | 54 | 8.3 | 15 | .34 |
| 11 | 4.8 | 10 | .13 | 15 | 24 | 1.0 | 8.1 | 15 | .34 |
| 12 | 6.4 | 10 | .18 | 14 | 24 | .88 | 8.2 | 15 | .32 |
| 13 | 15 | 18 | 1.3 | 14 | 24 | .88 | 8.1 | 14 | .30 |
| 14 | 6.8 | 18 | .33 | 1470 | 47 | 339 | 363 | 20 | 95 |
| 15 | 6.3 | 14 | .25 | 201 | 43 | 50 | 261 | 23 | 44 |
| 16 | 6.2 | 12 | .21 | 12 | 23 | .74 | 7.8 | 7 | .18 |
| 17 | 6.0 | 12 | .20 | 12 | 23 | .74 | 6.5 | 5 | .08 |
| 18 | 6.3 | 12 | .21 | 12 | 23 | .74 | 6.2 | 5 | .08 |
| 19 | 6.2 | 11 | .18 | 142 | 31 | 37 | 4200 | 88 | 1100 |
| 20 | 7.4 | 10 | .20 | 14 | 24 | .88 | 1870 | 210 | 1350 |
| 21 | 8.8 | 14 | .46 | 14 | 24 | .88 | 274 | 42 | 67 |
| 22 | 5.4 | 15 | .25 | 14 | 24 | .88 | 388 | 38 | 111 |
| 23 | 4.1 | 10 | .11 | 15 | 21 | .92 | 7.7 | 19 | .47 |
| 24 | 3.7 | 10 | .10 | 17 | 23 | 1.2 | 213 | 25 | 47 |
| 25 | 3.6 | 8 | .08 | 15 | 25 | 1.0 | 5.2 | 16 | .24 |
| 26 | 3.8 | 8 | .07 | 401 | 36 | 191 | 4.5 | 13 | .15 |
| 27 | 4.2 | 8 | .07 | 18 | 23 | 1.1 | 4.0 | 10 | .11 |
| 28 | 3.6 | 8 | .08 | 272 | 26 | 57 | 3.7 | 8 | .08 |
| 29 | 6.4 | 12 | .27 | 11 | 20 | .61 | 224 | 20 | 60 |
| 30 | 5.1 | 14 | .20 | 10 | 20 | .56 | 4.3 | 14 | .18 |
| 31 | --- | --- | --- | 10 | 20 | .52 | --- | --- | --- |
| TOTAL | 172.5 | --- | 7.72 | 5412.3 | --- | 1653.16 | 7952.9 | --- | 2880.41 |

RIO GRANDE DE LOIZA BASIN

50059050 RIO GRANDE DE LOIZA BELOW DAMSITE LOIZA, PR--Continued

SEDIMENT DISCHARGE, SUSPENDED (TONS/DAY), WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993

| DAY | MEAN DISCHARGE (CFS) | MEAN CONCENTRATION (MG/L) | SEDIMENT DISCHARGE (TONS/DAY) | MEAN DISCHARGE (CFS) | MEAN CONCENTRATION (MG/L) | SEDIMENT DISCHARGE (TONS/DAY) | MEAN DISCHARGE (CFS) | MEAN CONCENTRATION (MG/L) | SEDIMENT DISCHARGE (TONS/DAY) |
|-------|----------------------------|---------------------------------|-------------------------------------|----------------------------|---------------------------------|-------------------------------------|----------------------------|---------------------------------|-------------------------------------|
| JULY | | | AUGUST | | | SEPTEMBER | | | |
| 1 | 3.9 | 10 | .10 | 9.1 | 18 | .43 | 5.6 | 10 | .16 |
| 2 | 178 | 23 | 50 | 198 | 29 | 56 | 353 | 24 | 189 |
| 3 | 155 | 20 | 43 | 8.5 | 20 | .45 | 5.9 | 13 | .20 |
| 4 | 6.7 | 19 | .47 | 7.8 | 18 | .37 | 5.7 | 10 | .15 |
| 5 | 3.9 | 14 | .15 | 7.8 | 17 | .36 | 7.4 | 10 | .20 |
| 6 | 3.9 | 10 | .10 | 179 | 28 | 51 | 303 | 24 | 136 |
| 7 | 264 | 28 | 68 | 7.7 | 19 | .38 | 7.0 | 18 | .36 |
| 8 | 138 | 20 | 43 | 7.1 | 17 | .31 | 5.8 | 13 | .20 |
| 9 | 51 | 21 | 12 | 7.3 | 15 | .29 | 237 | 22 | 103 |
| 10 | 101 | 21 | 25 | 7.4 | 15 | .28 | 6.8 | 18 | .31 |
| 11 | 11600 | 831 | 55100 | 7.1 | 14 | .26 | 406 | 29 | 233 |
| 12 | 600 | 52 | 147 | 6.5 | 14 | .24 | 7.5 | 13 | .24 |
| 13 | 600 | 43 | 292 | 6.5 | 13 | .22 | 7.3 | 10 | .19 |
| 14 | 205 | 32 | 64 | 217 | 26 | 68 | 7.4 | 10 | .20 |
| 15 | 170 | 29 | 50 | 6.9 | 19 | .37 | 7.5 | 10 | .20 |
| 16 | 411 | 43 | 116 | 935 | 56 | 289 | 8.6 | 10 | .24 |
| 17 | 167 | 30 | 45 | 252 | 25 | 112 | 253 | 25 | 127 |
| 18 | 10 | 21 | .61 | 5.7 | 10 | .15 | 611 | 34 | 338 |
| 19 | 173 | 31 | 42 | 5.4 | 10 | .14 | 6.9 | 19 | .37 |
| 20 | 9.5 | 20 | .52 | 4.9 | 10 | .13 | 203 | 24 | 94 |
| 21 | 9.6 | 20 | .53 | 5.1 | 10 | .14 | 5.6 | 15 | .22 |
| 22 | 1410 | 59 | 711 | 330 | 26 | 135 | 5.6 | 14 | .22 |
| 23 | 2130 | 93 | 711 | 341 | 31 | 181 | 490 | 27 | 271 |
| 24 | 1120 | 73 | 318 | 5.3 | 10 | .14 | 11 | 18 | .89 |
| 25 | 215 | 36 | 56 | 217 | 26 | 58 | 337 | 25 | 181 |
| 26 | 520 | 37 | 304 | 5.4 | 13 | .19 | 6.1 | 15 | .25 |
| 27 | 192 | 33 | 47 | 5.2 | 10 | .14 | 6.2 | 15 | .25 |
| 28 | 182 | 44 | 47 | 5.5 | 10 | .15 | 294 | 25 | 126 |
| 29 | 10 | 50 | 1.4 | 9.2 | 14 | .51 | 6.0 | 16 | .29 |
| 30 | 180 | 38 | 45 | 6.7 | 14 | .25 | 654 | 37 | 338 |
| 31 | 9.5 | 21 | .53 | 5.7 | 12 | .18 | --- | --- | --- |
| TOTAL | 20829.0 | --- | 58340.41 | 2822.8 | --- | 956.08 | 4270.9 | --- | 2141.14 |
| YEAR | 64166.0 | | 78464.25 | | | | | | |

RIO GRANDE DE LOIZA BASIN

50059050 RIO GRANDE DE LOIZA BELOW DAMSITE, PR--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1991 TO SEPTEMBER 1993

PARTICLE-SIZE DISTRIBUTION OF SUSPENDED SEDIMENT

| DATE | TIME | DIS- CHARGE, INST. CUBIC FEET PER SECOND | SEDI- MENT, DIS- CHARGE, SUS- PENDEDED (MG/L) | SEDI- MENT, DIS- CHARGE, SUS- PENDEDED (T/DAY) | SED. SUSP. FALL DIAM. PERCENT FINER THAN .002 MM | SED. SUSP. FALL DIAM. PERCENT FINER THAN .004 MM | SED. SUSP. FALL DIAM. PERCENT FINER THAN .008 MM |
|----------|------|--|---|--|---|---|---|
| JAN 1992 | | | | | | | |
| 05... | 1805 | 16400 | 1730 | 76600 | 63 | 70 | 75 |
| 05... | 1935 | 39400 | 1710 | 182000 | 65 | 70 | 73 |
| MAY | | | | | | | |
| 19... | 1803 | 4110 | 2790 | 31000 | 30 | 38 | 44 |
| 23... | 1526 | 4115 | 678 | 7530 | 38 | -- | 50 |
| 25... | 0148 | 4290 | 748 | 8660 | 50 | 59 | -- |
| 26... | 1623 | 6240 | 4510 | 76000 | 35 | 43 | 50 |
| MAY 1993 | | | | | | | |
| 01... | 1500 | 3770 | 3170 | 32500 | 35 | 40 | 51 |
| JUL | | | | | | | |
| 11... | 1821 | 24200 | 7360 | 481000 | 39 | 43 | 51 |

| DATE | SED. SUSP. FALL DIAM. PERCENT FINER THAN .016 MM | SED. SUSP. FALL DIAM. PERCENT FINER THAN .031 MM | SED. SUSP. SIEVE DIAM. PERCENT FINER THAN .062 MM | SED. SUSP. SIEVE DIAM. PERCENT FINER THAN .125 MM | SED. SUSP. SIEVE DIAM. PERCENT FINER THAN .250 MM | SED. SUSP. SIEVE DIAM. PERCENT FINER THAN .500 MM | SED. SUSP. SIEVE DIAM. PERCENT FINER THAN 1.00 MM |
|----------|---|---|--|--|--|--|--|
| JAN 1992 | | | | | | | |
| 05... | -- | 81 | 97 | 99 | 99 | 100 | 100 |
| 05... | 79 | 81 | 98 | 99 | 99 | 100 | 100 |
| MAY | | | | | | | |
| 19... | 58 | 71 | 85 | 94 | 97 | 99 | 100 |
| 23... | 51 | 52 | 79 | 89 | 93 | 95 | 97 |
| 25... | 63 | 73 | 91 | 96 | 98 | 99 | 100 |
| 26... | 56 | 64 | 85 | 95 | 99 | 99 | 100 |
| MAY 1993 | | | | | | | |
| 01... | 64 | 77 | 90 | 97 | 98 | 99 | 99.6 |
| JUL | | | | | | | |
| 11... | 64 | 74 | 93 | 99 | 99.8 | 99.9 | 100 |

RIO GRANDE DE LOIZA BASIN
 50059050 RIO GRANDE DE LOIZA BLW DAMSITE, PR--Continued
 WATER QUALITY DATA, WATER YEAR OCTOBER 1991 TO SEPTEMBER 1993
 SILT AND CLAY PERCENT OF SUSPENDED SEDIMENT

| DATE | TIME | STREAM- FLOW, INSTAN- TANEOUS (CFS) | SEDI- MENT, SUS- PENDEED (MG/L) | SEDI- MENT, DIS- CHARGE, SUS- PENDEED (T/DAY) | SED. SUSP. SIEVE DIAM. PERCENT FINER THAN .062 MM |
|----------|------|---|---|---|--|
| NOV 1991 | | | | | |
| 20... | 1120 | 5.1 | 83 | 1.14 | 98 |
| 21... | 2014 | 7950 | 193 | 4140 | 90 |
| 22... | 2217 | 13400 | 125 | 4520 | 85 |
| JAN 1992 | | | | | |
| 05... | 1750 | 14050 | 2280 | 86500 | 98 |
| 05... | 1915 | 34500 | 1680 | 156000 | 99 |
| 05... | 2155 | 74760 | 1970 | 398000 | 99 |
| 07... | 1155 | 2860 | 365 | 2820 | 99 |
| 08... | 1233 | 166 | 264 | 118 | 99 |
| MAY | | | | | |
| 23... | 1531 | 4115 | 513 | 5700 | 83 |
| 23... | 2234 | 3650 | 360 | 3550 | 72 |
| 25... | 2150 | 4110 | 593 | 4110 | 94 |
| 26... | 0335 | 30600 | 427 | 35300 | 99 |
| JUL | | | | | |
| 28... | 1045 | 4950 | 489 | 6530 | 91 |
| SEP | | | | | |
| 23... | 1520 | 33 | 175 | 16 | 99 |
| OCT | | | | | |
| 06... | 1649 | 1860 | 1390 | 6980 | 93 |
| APR 1993 | | | | | |
| 14... | 1430 | 6.8 | 326 | 6.0 | 95 |
| 23... | 1055 | 4.2 | 111 | 1.3 | 97 |
| MAY | | | | | |
| 01... | 1515 | 9520 | 361 | 9280 | 75 |
| 02... | 1913 | 12000 | 105 | 3410 | 87 |
| JUL | | | | | |
| 11... | 1536 | 35900 | 680 | 65900 | 82 |
| 12... | 1330 | 197 | 413 | 220 | 99 |

RIO GRANDE DE LOIZA BASIN

50059100 RIO GRANDE DE LOIZA BELOW TRUJILLO ALTO, PR

WATER-QUALITY RECORDS

LOCATION.--Lat 18°21'35", long 66°00'15", 100 ft (30 m) downstream of Highway 181 bridge, 0.4 mi (0.6 km) northwest of Trujillo Alto plaza, and 2.2 mi (3.5 km) northeast of Lago Loiza Reservoir.

DRAINAGE AREA.--213 mi² (552 km²).

PERIOD OF RECORD.--Water years 1981 to current year.

REMARKS.--Flow controlled by Lago Loiza reservoir.

WATER-QUALITY DATA, WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993

| DATE | TIME | DIS-CHARGE, INST. CUBIC FEET PER SECOND | SPE-CIFIC CON-DUCT-ANCE (US/CM) | PH WATER WHOLE FIELD (STAND-ARD UNITS) | TEMPER-ATURE WATER (DEG C) | TUR-BID-ITY (NTU) | OXYGEN, DIS-SOLVED (MG/L) | OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION) | OXYGEN DEMAND, CHEM-ICAL (HIGH LEVEL) (MG/L) | COLI-FORM, FECAL, UM-MF (COLS./100 ML) | STREP-TOCOCCI, FECAL, (COLS. PER 100 ML) |
|----------|------|---|---------------------------------|--|----------------------------|-------------------|---------------------------|---|--|--|--|
| OCT 1992 | | | | | | | | | | | |
| 06... | 0945 | 16 | 258 | 7.8 | 29.0 | 28 | 9.3 | 120 | 10 | K500 | K130 |
| DEC | | | | | | | | | | | |
| 07... | 1100 | 18 | 300 | 7.7 | 25.2 | 12 | 6.2 | 74 | 10 | 5500 | 480 |
| FEB 1993 | | | | | | | | | | | |
| 09... | 0950 | 15 | 430 | 7.1 | 25.6 | 27 | 10.8 | 131 | 15 | 2800 | 170 |
| APR | | | | | | | | | | | |
| 08... | 1115 | 15 | 440 | 7.9 | 32.0 | 2.3 | 12.2 | 160 | 11 | 280 | K10 |
| MAY | | | | | | | | | | | |
| 24... | 1330 | 31 | 207 | 7.2 | 27.9 | 160 | 6.4 | 81 | 74 | K130000 | K120000 |
| AUG | | | | | | | | | | | |
| 06... | 1030 | 87 | 205 | 6.9 | 29.3 | 240 | 5.5 | 71 | <10 | K16000 | 570 |

| DATE | HARD-NESS TOTAL (MG/L AS CaCO3) | HARD-NESS NONCARB WH WAT TOT FLD (MG/L AS CaCO3) | CALCIUM DIS-SOLVED (MG/L AS Ca) | MAGNE-SIUM, DIS-SOLVED (MG/L AS Mg) | SODIUM, DIS-SOLVED (MG/L AS Na) | SODIUM AD-SORP-TION RATIO | POTAS-SIUM, DIS-SOLVED (MG/L AS K) | ALKA-LINITY WAT WH TOT FET FIELD (MG/L AS CaCO3) | SULFIDE TOTAL (MG/L AS S) | SULFATE DIS-SOLVED (MG/L AS SO4) | CHLO-RIDE, DIS-SOLVED (MG/L AS Cl) |
|----------|---------------------------------|--|---------------------------------|-------------------------------------|---------------------------------|---------------------------|------------------------------------|--|---------------------------|----------------------------------|------------------------------------|
| OCT 1992 | | | | | | | | | | | |
| 06... | 52 | 3 | 29 | 6.1 | 13 | 0.7 | 2.5 | 84 | 1.1 | 14 | 18 |
| DEC | | | | | | | | | | | |
| 07... | -- | -- | -- | -- | -- | -- | -- | 100 | -- | -- | -- |
| FEB 1993 | | | | | | | | | | | |
| 09... | -- | -- | -- | -- | -- | -- | -- | 71 | -- | -- | -- |
| APR | | | | | | | | | | | |
| 08... | 140 | 0 | 34 | 14 | 34 | 1 | 2.6 | 150 | <0.5 | 19 | 33 |
| MAY | | | | | | | | | | | |
| 24... | -- | -- | -- | -- | -- | -- | -- | 70 | -- | -- | -- |
| AUG | | | | | | | | | | | |
| 06... | 120 | 5 | 15 | 11 | 25 | 1 | 2.9 | 46 | -- | 24 | 29 |

| DATE | FLUO-RIDE, DIS-SOLVED (MG/L AS F) | SILICA, DIS-SOLVED (MG/L AS SiO2) | SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L) | SOLIDS, DIS-SOLVED (TONS PER DAY) | RESIDUE TOTAL AT 105 DEG. C, SUS-PENDED (MG/L) | NITRO-GEN, NITRATE TOTAL (MG/L AS N) | NITRO-GEN, NITRITE TOTAL (MG/L AS N) | NITRO-GEN, NO2+NO3 TOTAL (MG/L AS N) | NITRO-GEN, AMMONIA TOTAL (MG/L AS N) | NITRO-GEN, ORGANIC TOTAL (MG/L AS N) |
|----------|-----------------------------------|-----------------------------------|---|-----------------------------------|--|--------------------------------------|--------------------------------------|--------------------------------------|--------------------------------------|--------------------------------------|
| OCT 1992 | | | | | | | | | | |
| 06... | <0.10 | 21 | 130 | 5.62 | 12 | 0.870 | 0.020 | 0.890 | 0.030 | 0.47 |
| DEC | | | | | | | | | | |
| 07... | -- | -- | -- | -- | 25 | 0.970 | 0.030 | 1.00 | 0.030 | 0.27 |
| FEB 1993 | | | | | | | | | | |
| 09... | -- | -- | -- | -- | 33 | 0.480 | 0.020 | 0.500 | 0.060 | 0.44 |
| APR | | | | | | | | | | |
| 08... | 0.20 | 26 | 253 | 10.1 | 6 | 0.270 | 0.030 | 0.300 | 0.070 | 0.73 |
| MAY | | | | | | | | | | |
| 24... | -- | -- | -- | -- | 368 | -- | <0.010 | 0.100 | 0.030 | 0.27 |
| AUG | | | | | | | | | | |
| 06... | <0.10 | 35 | 210 | 49.3 | 18 | -- | <0.010 | 0.200 | 0.030 | 0.57 |

K = non-ideal count

RIO GRANDE DE LOIZA BASIN

50059100 RIO GRANDE DE LOIZA BELOW TRUJILLO ALTO, PR--Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993

| DATE | NITRO- GEN, AM- MONIA + ORGANIC TOTAL (MG/L AS N) | NITRO- GEN, TOTAL (MG/L AS N) | NITRO- GEN, TOTAL (MG/L AS NO3) | PHOS- PHORUS TOTAL (MG/L AS P) | ARSENIC TOTAL (UG/L AS AS) | BARIUM, TOTAL RECOV- ERABLE (UG/L AS BA) | BORON, TOTAL RECOV- ERABLE (UG/L AS B) | CADMIUM TOTAL RECOV- ERABLE (UG/L AS CD) | CHRO- MIUM, TOTAL RECOV- ERABLE (UG/L AS CR) | COPPER, TOTAL RECOV- ERABLE (UG/L AS CU) |
|-----------|---|---|---|--|-------------------------------------|---|---|---|--|---|
| OCT 1992 | | | | | | | | | | |
| 06... | 0.50 | 1.4 | 6.2 | 0.230 | <1 | <100 | 30 | <1 | 2 | <10 |
| DEC 07... | 0.30 | 1.3 | 5.8 | 0.260 | -- | -- | -- | -- | -- | -- |
| FEB 1993 | | | | | | | | | | |
| 09... | 0.50 | 1.0 | 4.4 | 0.310 | -- | -- | -- | -- | -- | -- |
| APR 08... | 0.80 | 1.1 | 4.9 | 0.320 | 2 | <100 | 60 | <1 | 1 | <10 |
| MAY 24... | 0.30 | 0.40 | 1.8 | 0.260 | -- | -- | -- | -- | -- | -- |
| AUG 06... | 0.60 | 0.80 | 3.5 | 0.180 | -- | -- | -- | -- | -- | -- |

[illegible]

RIO GRANDE DE LOIZA BASIN

50061000 RIO GRANDE DE LOIZA AT CAROLINA, PR

LOCATION.--Lat 18°22'39", long 65°57'08", Hydrologic Unit 21010005, on upstream right bank of Highway 3 bridge, at Km 11.5, 0.5 mi (0.8 km) southeast of Carolina Plaza, 3.3 mi (5.3 km) west of Canóvanas Plaza and 2.5 mi (4.0 km) southwest of Cerro San José.

DRAINAGE AREA.--243 mi² (629 km²).

WATER-STAGE RECORDS

PERIOD OF RECORD.--January 1991 to current year.

GAGE.--Water-stage recorder. Elevation of gage is 32.8 ft (10.0 m), from topographic map.

REMARKS.--Flow regulated by Lago Loíza Dam. Gage-height and precipitation satellite telemetry at station.

EXTREMES FOR PERIOD OF RECORD.--Maximum gage-height, 33.18 ft (10.113 m), Jan. 6, 1992; minimum, 3.91 ft (1.192 m), Aug. 6, 1991.

EXTREMES FOR CURRENT YEAR.--Maximum gage-height, 27.31 ft (8.324 m), July 11; minimum 3.95 ft (1.204 m), June 5.

GAGE HEIGHT, FEET, WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993

DAILY MEAN VALUES

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|------|------|-------|------|------|------|------|------|------|-------|-------|------|------|
| 1 | 5.90 | 6.18 | 6.28 | 6.36 | 4.76 | 5.06 | 5.18 | 6.68 | 4.60 | 4.71 | 4.92 | 5.08 |
| 2 | 5.43 | 5.61 | 6.81 | 6.15 | 5.30 | 5.47 | 5.31 | 8.61 | 4.58 | 5.62 | 5.88 | 6.11 |
| 3 | 5.44 | 5.53 | 4.93 | 4.96 | 5.51 | 5.85 | 5.44 | 5.78 | 4.53 | 4.83 | 5.01 | 5.21 |
| 4 | 5.53 | 7.91 | 6.11 | 5.90 | 5.33 | 6.06 | 5.55 | 4.88 | 4.50 | 5.48 | 4.97 | 5.14 |
| 5 | 5.26 | 6.67 | 5.04 | 5.14 | 5.27 | 6.23 | 5.69 | 5.59 | 4.48 | 4.77 | 4.99 | 5.19 |
| 6 | 5.78 | 6.04 | 5.48 | 5.05 | 4.97 | 6.38 | 5.81 | 5.29 | 4.47 | 4.79 | 5.70 | 6.09 |
| 7 | 6.24 | 6.24 | 5.68 | 6.38 | 4.87 | 6.51 | 5.90 | 5.22 | 4.54 | 5.96 | 5.04 | 5.54 |
| 8 | 6.29 | 5.76 | 5.23 | 6.26 | 4.80 | 6.63 | 6.05 | 4.91 | 4.62 | 5.04 | 5.00 | 5.06 |
| 9 | 5.33 | 5.31 | 4.98 | 4.97 | 4.75 | 6.67 | 6.37 | 5.79 | 4.69 | 5.64 | 5.02 | 5.76 |
| 10 | 6.01 | 5.98 | 4.83 | 5.82 | 4.63 | 6.20 | 6.54 | 6.29 | 4.71 | 5.44 | 5.00 | 5.11 |
| 11 | 5.82 | 5.92 | 4.84 | 5.01 | 4.64 | 5.78 | 6.67 | 5.02 | 4.69 | 14.75 | 4.98 | 6.05 |
| 12 | 5.02 | 5.45 | 4.85 | 4.89 | 4.77 | 5.63 | 7.11 | 4.80 | 4.68 | 8.96 | 5.01 | 5.32 |
| 13 | 4.95 | 5.61 | 5.03 | 4.85 | 4.75 | 5.53 | 6.36 | 4.95 | 4.70 | 6.57 | 5.00 | 5.29 |
| 14 | 5.01 | 5.51 | 6.32 | 4.75 | 4.79 | 5.44 | 5.45 | 7.61 | 5.52 | 6.47 | 5.70 | 5.33 |
| 15 | 5.10 | 6.03 | 6.78 | 4.65 | 4.85 | 5.50 | 5.12 | 6.08 | 5.58 | 5.43 | 5.28 | 5.33 |
| 16 | 5.17 | 5.41 | 5.44 | 4.69 | 4.96 | 5.79 | 5.16 | 4.82 | 5.37 | 6.90 | 7.45 | 5.36 |
| 17 | 5.20 | 5.46 | 5.33 | 5.55 | 4.94 | 6.19 | 5.05 | 4.77 | 4.72 | 5.69 | 6.33 | 6.47 |
| 18 | 5.88 | 7.84 | 5.92 | 4.77 | 4.99 | 6.43 | 4.97 | 4.67 | 4.62 | 5.29 | 5.21 | 6.44 |
| 19 | 5.75 | 6.66 | 5.07 | 4.74 | 5.01 | 6.62 | 4.95 | 5.32 | 11.36 | 5.85 | 5.13 | 5.97 |
| 20 | 5.16 | 6.53 | 4.79 | 4.74 | 5.09 | 6.73 | 5.01 | 4.67 | 9.97 | 4.99 | 5.10 | 6.08 |
| 21 | 5.03 | 6.42 | 4.85 | 4.71 | 5.50 | 6.82 | 5.32 | 4.65 | 6.25 | 5.00 | 5.19 | 5.40 |
| 22 | 6.08 | 6.74 | 5.05 | 5.81 | 5.27 | 6.91 | 5.38 | 4.64 | 6.13 | 6.93 | 6.13 | 5.25 |
| 23 | 5.45 | 5.77 | 5.51 | 5.36 | 4.95 | 6.81 | 5.16 | 4.75 | 5.48 | 10.77 | 6.13 | 5.59 |
| 24 | 5.46 | 6.14 | 5.63 | 4.95 | 4.87 | 5.96 | 5.08 | 4.92 | 5.51 | 8.60 | 5.21 | 6.21 |
| 25 | 5.39 | 5.14 | 5.17 | 4.97 | 4.91 | 5.56 | 5.14 | 4.90 | 4.83 | 6.54 | 5.85 | 6.15 |
| 26 | 5.97 | 5.00 | 9.61 | 4.82 | 5.07 | 5.04 | 5.26 | 5.76 | 4.62 | 6.24 | 5.08 | 5.28 |
| 27 | 5.19 | 6.04 | 7.45 | 5.33 | 5.04 | 4.97 | 5.35 | 5.59 | 4.69 | 6.24 | 5.10 | 5.16 |
| 28 | 5.20 | 10.98 | 6.47 | 5.34 | 5.03 | 4.96 | 5.45 | 6.07 | 4.68 | 5.68 | 5.15 | 5.77 |
| 29 | 5.19 | 6.90 | 6.75 | 6.79 | --- | 5.00 | 5.85 | 4.73 | 5.30 | 5.09 | 5.20 | 5.64 |
| 30 | 5.92 | 10.11 | 8.30 | 5.00 | --- | 5.09 | 6.55 | 4.69 | 5.15 | 5.83 | 5.20 | 6.47 |
| 31 | 5.95 | --- | 6.78 | 4.75 | --- | 5.12 | --- | 4.66 | --- | 4.97 | 5.14 | --- |
| MEAN | 5.52 | 6.36 | 5.85 | 5.27 | 4.99 | 5.90 | 5.61 | 5.39 | 5.32 | 6.29 | 5.36 | 5.63 |
| MAX | 6.29 | 10.98 | 9.61 | 6.79 | 5.51 | 6.91 | 7.11 | 8.61 | 11.36 | 14.75 | 7.45 | 6.47 |
| MIN | 4.95 | 5.00 | 4.79 | 4.65 | 4.63 | 4.96 | 4.95 | 4.64 | 4.47 | 4.71 | 4.92 | 5.06 |

RIO GRANDE DE LOIZA BASIN

50061800 RIO CANOVANAS NEAR CAMPO RICO, PR

LOCATION.--Lat 18°19'08", long 65°53'21", Hydrologic Unit 21010005, at center pier on downstream side of bridge, on paved secondary road, 0.4 mi (0.6 km) northeast of junction of Highways 185 and 186, 1.5 mi (2.4 km) south of Campo Rico, and 4.4 mi (7.1 km) south of Loíza.

DRAINAGE AREA.--9.84 mi² (25.48 km²).

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--March 1967 to current year.

GAGE.--Water-stage recorder and crest-stage gage. Elevation of gage is 225 ft (68 m), from topographic map.

REMARKS.--Records fair except those for estimated daily discharges, which are poor.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993
DAILY MEAN VALUES

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|-------|-------|--------|------|------|-------|-------|-------|-------|-------|--------|-------|-------|
| 1 | 18 | 6.2 | e22 | 43 | 16 | 9.3 | 6.4 | 229 | 9.5 | 6.9 | 13 | 6.7 |
| 2 | 16 | 5.7 | e16 | 32 | 27 | 9.5 | 6.6 | 175 | 8.2 | 6.2 | 12 | 6.1 |
| 3 | 11 | 20 | e14 | 29 | 37 | 9.1 | 6.7 | 30 | 7.9 | 11 | 12 | 5.9 |
| 4 | 8.4 | 96 | 49 | 27 | e20 | 8.7 | 6.5 | 14 | 7.4 | 12 | 12 | 5.5 |
| 5 | 7.6 | 30 | 26 | 29 | 16 | e8.4 | 6.7 | 11 | 6.9 | 6.8 | 11 | 37 |
| 6 | 9.4 | 14 | 32 | 35 | 14 | e8.4 | 6.9 | 9.9 | 6.6 | 5.4 | 11 | 26 |
| 7 | 11 | 13 | 23 | 59 | 13 | e8.4 | 7.1 | 8.9 | 6.2 | 8.2 | 10 | 13 |
| 8 | 9.3 | 9.8 | 19 | 39 | 13 | e8.1 | 9.2 | 9.2 | 5.9 | 12 | 9.8 | 23 |
| 9 | 9.4 | 9.9 | 17 | 29 | e12 | 8.2 | 8.3 | 42 | 6.3 | 8.3 | 9.5 | 24 |
| 10 | 9.7 | e63 | 16 | 24 | 11 | 7.9 | 7.3 | 21 | 6.7 | 5.7 | 8.8 | 12 |
| 11 | 8.3 | e13 | 14 | 23 | 11 | 7.9 | 7.0 | 15 | 6.4 | 701 | 8.8 | 8.7 |
| 12 | 7.9 | e13 | 13 | 23 | 11 | 7.6 | 8.1 | 10 | 5.8 | 52 | 8.5 | 7.1 |
| 13 | 7.3 | 36 | 12 | 21 | 11 | 7.4 | e12 | 8.9 | 5.7 | 19 | 7.8 | 7.0 |
| 14 | 10 | 14 | 16 | 22 | 10 | 7.5 | e11 | 8.4 | 6.4 | 13 | 7.9 | 7.1 |
| 15 | 7.9 | 11 | 26 | 20 | 9.9 | 7.4 | e9.8 | 9.8 | 6.3 | 18 | 8.3 | 6.6 |
| 16 | 7.0 | 40 | 15 | 19 | 10 | 9.6 | 9.6 | 8.4 | 6.3 | 39 | 13 | 21 |
| 17 | 7.2 | 25 | 14 | 18 | 9.9 | 13 | 7.0 | 7.6 | 5.5 | 15 | 9.9 | 39 |
| 18 | 12 | 52 | 14 | 17 | 9.8 | 9.0 | 6.2 | 7.4 | 4.9 | 11 | 7.5 | 38 |
| 19 | 8.1 | 31 | 15 | 17 | 9.9 | 8.4 | 5.8 | 7.4 | 156 | 10 | 6.9 | 26 |
| 20 | 13 | 32 | 13 | 17 | 15 | 7.9 | 6.3 | 6.9 | 99 | 9.8 | 6.5 | 19 |
| 21 | 7.5 | 108 | 12 | 16 | 24 | 8.2 | 9.4 | 6.9 | 16 | 9.7 | 6.3 | 13 |
| 22 | 7.0 | 135 | 36 | 20 | 16 | 7.3 | 6.6 | 6.9 | 11 | 92 | 6.8 | 10 |
| 23 | 8.6 | 50 | 20 | 30 | 12 | 8.2 | 6.7 | 8.1 | 8.9 | 286 | 13 | 10 |
| 24 | 7.0 | 32 | 28 | 18 | 11 | 10 | 6.0 | 8.4 | 8.9 | 81 | 8.7 | 11 |
| 25 | 6.7 | 23 | 32 | 31 | 10 | 8.6 | 5.9 | 27 | 7.3 | 36 | 7.2 | 8.9 |
| 26 | 6.2 | e21 | 186 | 21 | 9.9 | 7.6 | 5.5 | 21 | 6.5 | 27 | 6.8 | 8.0 |
| 27 | 7.7 | e159 | 49 | 20 | 9.9 | 6.9 | 5.3 | 39 | 6.1 | 26 | 6.4 | 12 |
| 28 | 8.0 | e113 | 47 | e32 | 9.7 | 6.5 | 5.6 | 31 | 5.6 | 19 | 6.5 | 13 |
| 29 | 6.2 | e103 | 120 | 86 | --- | 6.5 | 6.8 | 14 | 5.3 | 17 | 6.2 | 13 |
| 30 | 6.2 | e79 | 199 | 29 | --- | 6.5 | 41 | 12 | 7.2 | 15 | 6.2 | 102 |
| 31 | 9.4 | --- | 46 | 20 | --- | 6.7 | --- | 10 | --- | 14 | 7.2 | --- |
| TOTAL | 279.0 | 1357.6 | 1161 | 866 | 389.0 | 254.7 | 253.3 | 824.1 | 456.7 | 1593.0 | 275.5 | 539.6 |
| MEAN | 9.00 | 45.3 | 37.5 | 27.9 | 13.9 | 8.22 | 8.44 | 26.6 | 15.2 | 51.4 | 8.89 | 18.0 |
| MAX | 18 | 159 | 199 | 86 | 37 | 13 | 41 | 229 | 156 | 701 | 13 | 102 |
| MIN | 6.2 | 5.7 | 12 | 16 | 9.7 | 6.5 | 5.3 | 6.9 | 4.9 | 5.4 | 6.2 | 5.5 |
| AC-FT | 553 | 2690 | 2300 | 1720 | 772 | 505 | 502 | 1630 | 906 | 3160 | 546 | 1070 |
| CFSM | .91 | 4.60 | 3.81 | 2.84 | 1.41 | .83 | .86 | 2.70 | 1.55 | 5.22 | .90 | 1.83 |
| IN. | 1.05 | 5.13 | 4.39 | 3.27 | 1.47 | .96 | .96 | 3.12 | 1.73 | 6.02 | 1.04 | 2.04 |

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1967 - 1993, BY WATER YEAR (WY)

| | MEAN | 44.1 | 46.4 | 34.6 | 24.4 | 19.3 | 14.5 | 16.0 | 30.5 | 19.1 | 19.2 | 26.1 | 32.4 |
|------|------|------|------|------|------|------|------|------|------|------|------|------|------|
| MAX | 273 | 125 | 116 | 62.4 | 48.4 | 36.2 | 53.2 | 93.2 | 63.7 | 63.7 | 137 | 103 | |
| (WY) | 1971 | 1985 | 1971 | 1969 | 1988 | 1969 | 1971 | 1969 | 1970 | 1979 | 1979 | 1979 | 1979 |
| MIN | 6.74 | 6.66 | 5.82 | 6.66 | 4.04 | 3.54 | 4.66 | 4.28 | 2.80 | 3.72 | 5.69 | 5.20 | |
| (WY) | 1968 | 1981 | 1968 | 1977 | 1977 | 1977 | 1984 | 1974 | 1974 | 1974 | 1991 | 1967 | |

| SUMMARY STATISTICS | FOR 1992 CALENDAR YEAR | FOR 1993 WATER YEAR | WATER YEARS 1967 - 1993 |
|--------------------------|------------------------|---------------------|-------------------------|
| ANNUAL TOTAL | 8558.2 | 8249.5 | |
| ANNUAL MEAN | 23.4 | 22.6 | 27.6 |
| HIGHEST ANNUAL MEAN | | | 58.0 |
| LOWEST ANNUAL MEAN | | | 11.0 |
| HIGHEST DAILY MEAN | 376 | 701 | 3160 |
| LOWEST DAILY MEAN | 4.0 | 4.9 | .80 |
| ANNUAL SEVEN-DAY MINIMUM | 4.6 | 5.8 | 1.5 |
| INSTANTANEOUS PEAK FLOW | | 4050 | 15000 |
| INSTANTANEOUS PEAK STAGE | | 9.74 | 13.10 |
| INSTANTANEOUS LOW FLOW | | 4.8 | .80 |
| ANNUAL RUNOFF (AC-FT) | 16980 | 16360 | 19970 |
| ANNUAL RUNOFF (CFSM) | 2.38 | 2.30 | 2.80 |
| ANNUAL RUNOFF (INCHES) | 32.35 | 31.19 | 38.05 |
| 10 PERCENT EXCEEDS | 40 | 39 | 44 |
| 50 PERCENT EXCEEDS | 11 | 10 | 12 |
| 90 PERCENT EXCEEDS | 5.9 | 6.4 | 5.3 |

e Estimated

Figure 21.--Northeastern river basins the Río Herrera to Río Antón Ruiz basins.

RIO ESPIRITU SANTO BASIN

50063440 QUEBRADA SONADORA NEAR EL VERDE, PR

LOCATION.--Lat 18°19'24", long 65°49'03", Hydrologic Unit 21010005, in Caribbean National Forest, at El Yunque, 0.6 mi (1.0 km) upstream from Río Espíritu Santo, 0.2 mi (0.3 km) upstream from Highway 186, and about 1.2 mi (1.9 km) south of El Verde.

DRAINAGE AREA.--1.01 mi² (2.62 km²).

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--March 1983 to current year.

GAGE.--Water-stage recorder and crest-stage gage. Elevation of gage is 1,230 ft (375 m), from topographic map.

REMARKS.--Records poor.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993
DAILY MEAN VALUES

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|-------|------|--------|--------|--------|-------|-------|--------|--------|--------|--------|-------|--------|
| 1 | e.17 | e2.0 | 1.9 | 15 | .24 | .06 | .09 | 36 | .25 | .34 | .04 | .05 |
| 2 | e.16 | e3.0 | .95 | 12 | 1.2 | .13 | .09 | 73 | .18 | 11 | .03 | .01 |
| 3 | e.14 | e3.5 | .90 | 3.3 | 3.2 | .07 | 6.6 | 13 | .13 | 35 | .02 | .26 |
| 4 | e.15 | e4.6 | 28 | 2.0 | .93 | .04 | .37 | .55 | .11 | 2.3 | .02 | 4.0 |
| 5 | e.15 | e1.1 | 1.4 | 12 | .44 | .03 | .24 | 1.8 | .09 | .47 | .01 | 8.6 |
| 6 | e.20 | e.50 | 9.7 | e36 | .16 | .03 | .20 | 3.2 | .08 | .40 | .01 | 8.5 |
| 7 | e.25 | e.26 | .81 | e60 | .10 | .02 | .08 | 2.7 | .08 | 30 | .01 | 11 |
| 8 | e.14 | e.40 | .46 | e13 | .07 | .15 | .12 | 5.6 | .12 | 9.2 | .01 | 12 |
| 9 | e.14 | e.60 | .33 | e6.8 | .06 | .03 | 16 | 16 | .15 | .71 | .01 | 1.8 |
| 10 | e.15 | e4.0 | .26 | e7.8 | .05 | .01 | 3.5 | 1.5 | 4.1 | .49 | .01 | .67 |
| 11 | e.13 | e.34 | e.25 | e5.2 | .04 | .01 | .37 | 1.6 | .34 | e70 | .03 | .06 |
| 12 | e.13 | e.25 | e.25 | e4.1 | 9.9 | .01 | .24 | .16 | .14 | e1.7 | .01 | .08 |
| 13 | e.12 | e.17 | e.25 | e4.1 | .36 | .01 | 17 | .14 | 5.1 | .22 | .01 | .15 |
| 14 | e.12 | e.17 | e1.2 | e3.5 | .09 | .01 | 3.4 | 23 | .92 | 2.3 | .00 | .43 |
| 15 | e.12 | e.17 | e1.2 | 2.9 | .05 | .05 | 1.5 | .25 | 2.4 | 24 | .39 | 39 |
| 16 | e.12 | e4.8 | e.35 | .91 | .05 | 7.4 | 3.2 | .08 | 1.4 | 10 | 6.4 | 39 |
| 17 | e.11 | e.42 | e.52 | .20 | .05 | 1.2 | 3.4 | .05 | .25 | .20 | .47 | 8.2 |
| 18 | e.11 | e23 | e.69 | .10 | .05 | 1.6 | .39 | .04 | .52 | .09 | 1.5 | 11 |
| 19 | e.11 | e3.2 | .74 | .12 | .03 | 8.2 | .35 | .03 | 54 | .12 | 1.7 | 3.2 |
| 20 | e.12 | e.94 | .85 | .07 | 51 | .20 | .84 | .03 | 13 | .08 | .01 | 1.4 |
| 21 | e.11 | e17 | .47 | .04 | e15 | .06 | 1.3 | .02 | e1.0 | .03 | .01 | 1.1 |
| 22 | e.12 | e43 | 19 | 40 | e4.0 | .03 | .19 | .02 | e18 | 15 | 3.6 | 3.0 |
| 23 | e.11 | e1.6 | 4.3 | 2.8 | e1.0 | 15 | .11 | .18 | 2.1 | 39 | 1.7 | 2.2 |
| 24 | e.10 | 12 | 25 | 2.3 | e.15 | 12 | .08 | .35 | 3.4 | 14 | .02 | 2.6 |
| 25 | e.11 | 1.3 | 20 | 29 | .14 | 1.4 | .06 | 27 | .94 | .58 | .01 | .98 |
| 26 | e.12 | .83 | 61 | .84 | .16 | .59 | .13 | 17 | .48 | 1.8 | .02 | 1.2 |
| 27 | e.12 | 30 | 14 | 3.1 | .62 | .39 | .55 | 48 | .31 | 1.6 | .01 | 11 |
| 28 | e.12 | 21 | 17 | 12 | .10 | .28 | .35 | 2.8 | .29 | .13 | .00 | 12 |
| 29 | e.12 | 50 | 70 | 16 | --- | .18 | 21 | .62 | 1.1 | .08 | .00 | 3.7 |
| 30 | e.14 | 21 | 33 | .69 | --- | .14 | 59 | 7.5 | 10 | .05 | .09 | 6.8 |
| 31 | e2.7 | --- | 50 | .37 | --- | .10 | --- | .47 | --- | .05 | .29 | --- |
| TOTAL | 6.71 | 292.55 | 364.78 | 296.24 | 89.24 | 49.43 | 140.75 | 282.69 | 120.98 | 270.94 | 16.44 | 193.99 |
| MEAN | .22 | 9.75 | 11.8 | 9.56 | 3.19 | 1.59 | 4.69 | 9.12 | 4.03 | 8.74 | .53 | 6.47 |
| MAX | 2.7 | 50 | 70 | 60 | 51 | 15 | 59 | 73 | 54 | 70 | 6.4 | 39 |
| MIN | .10 | .17 | .25 | .04 | .03 | .01 | .06 | .02 | .08 | .03 | .00 | .01 |
| AC-FT | 13 | 580 | 724 | 588 | 177 | 98 | 279 | 561 | 240 | 537 | 33 | 385 |
| CFSM | .21 | 9.66 | 11.7 | 9.46 | 3.16 | 1.58 | 4.65 | 9.03 | 3.99 | 8.65 | .53 | 6.40 |
| IN. | .25 | 10.78 | 13.44 | 10.91 | 3.29 | 1.82 | 5.18 | 10.41 | 4.46 | 9.98 | .61 | 7.14 |

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1983 - 1993, BY WATER YEAR (WY)

| | | | | | | | | | | | | |
|------|------|------|------|------|------|------|------|------|------|------|------|------|
| MEAN | 6.23 | 10.8 | 8.43 | 6.61 | 6.32 | 5.63 | 5.20 | 8.65 | 5.83 | 6.85 | 7.13 | 6.43 |
| MAX | 17.1 | 20.1 | 21.6 | 10.8 | 12.0 | 14.7 | 9.99 | 15.9 | 13.7 | 12.8 | 14.5 | 15.6 |
| (WY) | 1986 | 1985 | 1988 | 1988 | 1988 | 1990 | 1987 | 1992 | 1987 | 1983 | 1988 | 1989 |
| MIN | .22 | 2.47 | .95 | 3.41 | 1.59 | 1.59 | 1.09 | 4.02 | .98 | 2.36 | .53 | 2.34 |
| (WY) | 1993 | 1991 | 1990 | 1985 | 1992 | 1993 | 1984 | 1991 | 1985 | 1991 | 1993 | 1986 |

SUMMARY STATISTICS

FOR 1992 CALENDAR YEAR

FOR 1993 WATER YEAR

WATER YEARS 1983 - 1993

| | | | |
|--------------------------|---------|---------|-------|
| ANNUAL TOTAL | 2399.74 | 2124.74 | |
| ANNUAL MEAN | 6.56 | 5.82 | 6.93 |
| HIGHEST ANNUAL MEAN | | | 9.48 |
| LOWEST ANNUAL MEAN | | | 4.46 |
| HIGHEST DAILY MEAN | 147 | May 1 | 216 |
| LOWEST DAILY MEAN | .09 | Jul 7 | .00 |
| ANNUAL SEVEN-DAY MINIMUM | .11 | Oct 18 | .01 |
| INSTANTANEOUS PEAK FLOW | | | 792 |
| INSTANTANEOUS PEAK STAGE | | | 7.56 |
| INSTANTANEOUS LOW FLOW | | | .00 |
| ANNUAL RUNOFF (AC-FT) | 4760 | 4210 | 5020 |
| ANNUAL RUNOFF (CFSM) | 6.49 | 5.76 | 6.86 |
| ANNUAL RUNOFF (INCHES) | 88.39 | 78.26 | 93.25 |
| 10 PERCENT EXCEEDS | 19 | 17 | 17 |
| 50 PERCENT EXCEEDS | 1.4 | .47 | 2.8 |
| 90 PERCENT EXCEEDS | .17 | .03 | .48 |

e Estimated

RIO ESPIRITU SANTO BASIN

50063500 QUEBRADA TORONJA AT EL VERDE, PR

LOCATION.--Lat 18°19'43", long 65°49'14", Hydrologic Unit 21010005, in Caribbean National Forest, at downstream side of culvert on Highway 186, 0.2 mi (0.3 km) upstream from Rio Espiritu Santo, and about 0.9 mi (1.4 km) south of El Verde.

DRAINAGE AREA.--0.064 mi² (0.166 km²).

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--April 1983 to current year.

GAGE.--Water-stage recorder, crest-stage gage and concrete broad-V-notch crested weir. Elevation of gage is 876 ft (267 m), from topographic map.

REMARKS.--Records poor. Gage-height satellite telemetry at station.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993
DAILY MEAN VALUES

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|-------|------|-------|-------|-------|------|------|------|-------|-------|-------|------|------|
| 1 | .21 | .24 | e.60 | 6.8 | .26 | e.19 | e.05 | e.22 | e.19 | e.29 | e.12 | e.01 |
| 2 | .20 | .35 | .36 | 3.7 | .46 | e.18 | e.03 | e12 | e.24 | e.92 | e.09 | e.01 |
| 3 | .17 | .42 | .27 | 2.1 | .68 | e.18 | e.03 | e2.3 | e.19 | e4.1 | e.07 | e.03 |
| 4 | .19 | 4.9 | 1.4 | 1.3 | .32 | e.43 | e.03 | e.29 | e.18 | e.54 | e.06 | e.33 |
| 5 | .21 | .23 | .26 | 1.5 | .24 | e.40 | e.02 | e.22 | e.17 | e.31 | e.05 | e.08 |
| 6 | .21 | .12 | 1.2 | 3.4 | .24 | e.44 | e.02 | e.34 | e.20 | e.33 | e.03 | e.04 |
| 7 | .20 | .07 | .20 | 5.0 | .23 | e.36 | e.01 | e.27 | e.21 | e5.8 | e.02 | e.07 |
| 8 | .18 | .08 | .16 | 1.6 | .21 | e.54 | e.03 | e1.0 | e.09 | e1.1 | e.03 | e.04 |
| 9 | .18 | .14 | .13 | .91 | .20 | e.39 | e.02 | e1.1 | e.19 | e.44 | e.04 | e.02 |
| 10 | .19 | .74 | .11 | 1.0 | .19 | e.24 | e.01 | e.31 | e.17 | e.38 | e.05 | e.02 |
| 11 | .17 | .09 | .09 | .74 | .22 | e.18 | e.02 | e.27 | e.13 | e11 | e.06 | e.01 |
| 12 | .17 | .07 | .08 | .59 | .52 | e.14 | e.03 | e.18 | e.14 | e1.7 | e.05 | e.01 |
| 13 | .16 | .06 | .08 | .59 | .23 | e.20 | e1.3 | e.19 | e.21 | e.77 | e.05 | e.07 |
| 14 | .16 | .05 | .17 | .51 | .20 | e.18 | e.06 | e.86 | e.19 | e.69 | e.05 | e.02 |
| 15 | .16 | .06 | .18 | .40 | .21 | e.20 | e.02 | e.23 | e.30 | e3.5 | e.06 | e1.7 |
| 16 | .16 | .81 | .08 | .39 | .23 | e.28 | e.03 | e.19 | e.21 | e3.6 | e.28 | e2.0 |
| 17 | .15 | .11 | .07 | .27 | .23 | e.16 | e.04 | e.22 | e.15 | e.67 | e.06 | e3.4 |
| 18 | .15 | 3.3 | .06 | .20 | .23 | e.10 | e.04 | e.15 | e.16 | e.49 | e.06 | e.20 |
| 19 | .15 | .56 | .06 | .19 | .22 | e.19 | e.03 | e.11 | e6.3 | e.50 | e.05 | e.07 |
| 20 | .16 | .21 | .05 | .17 | .49 | e.10 | e.07 | e.21 | e2.6 | e.40 | e.02 | e.04 |
| 21 | .15 | 1.9 | .05 | .15 | 1.7 | e.11 | e.07 | e.11 | e.45 | e.33 | e.03 | e.03 |
| 22 | .16 | 6.1 | .85 | 3.8 | e.50 | e.08 | e.05 | e.25 | e2.6 | e1.2 | e.06 | e.03 |
| 23 | .15 | .81 | .12 | .71 | e.27 | e.17 | e.04 | e.25 | e.45 | e7.0 | e.06 | e.03 |
| 24 | .14 | .59 | .76 | .39 | e.23 | e.18 | e.04 | e.70 | e.55 | e3.8 | e.03 | e.04 |
| 25 | .15 | .25 | 1.8 | 4.0 | e.21 | e.09 | e.05 | e2.5 | e.40 | e.81 | e.03 | e.04 |
| 26 | .16 | .21 | 7.6 | .45 | e.21 | e.04 | e.06 | e1.8 | e.32 | e.61 | e.03 | e.04 |
| 27 | .16 | 2.0 | .81 | .44 | e.21 | e.07 | e.06 | e7.5 | e.30 | e.50 | e.03 | e.10 |
| 28 | .16 | 3.4 | 1.5 | .44 | e.20 | e.09 | e.07 | e1.0 | e.34 | e.34 | e.03 | e.10 |
| 29 | .15 | 9.5 | 8.2 | .85 | --- | e.08 | e2.9 | e.57 | e.30 | e.26 | e.02 | e.06 |
| 30 | .17 | e9.4 | 9.8 | .30 | --- | e.10 | e3.0 | e.49 | e.48 | e.17 | e.04 | e.20 |
| 31 | .33 | --- | 11 | .24 | --- | e.10 | --- | e.37 | --- | e.12 | e.02 | --- |
| TOTAL | 5.41 | 46.77 | 48.10 | 43.13 | 9.34 | 6.19 | 8.23 | 36.20 | 18.41 | 52.67 | 1.68 | 8.84 |
| MEAN | .17 | 1.56 | 1.55 | 1.39 | .33 | .20 | .27 | 1.17 | .61 | 1.70 | .054 | .29 |
| MAX | .33 | 9.5 | 11 | 6.8 | 1.7 | .54 | 3.0 | 12 | 6.3 | 11 | .28 | 3.4 |
| MIN | .14 | .05 | .05 | .15 | .19 | .04 | .01 | .11 | .09 | .12 | .02 | .01 |
| AC-FT | 11 | 93 | 95 | 86 | 19 | 12 | 16 | 72 | 37 | 104 | 3.3 | 18 |
| CFSM | 2.91 | 26.0 | 25.9 | 23.2 | 5.56 | 3.33 | 4.57 | 19.5 | 10.2 | 28.3 | .90 | 4.91 |
| IN. | 3.35 | 29.00 | 29.82 | 26.74 | 5.79 | 3.84 | 5.10 | 22.44 | 11.41 | 32.66 | 1.04 | 5.48 |

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1983 - 1993, BY WATER YEAR (WY)

| | 1983 | 1984 | 1985 | 1986 | 1987 | 1988 | 1989 | 1990 | 1991 | 1992 | 1993 |
|------|------|------|------|------|------|------|------|------|------|------|------|
| MEAN | .32 | .69 | .52 | .38 | .25 | .23 | .21 | .41 | .28 | .36 | .28 |
| MAX | 1.35 | 1.56 | 1.55 | 1.39 | .44 | .63 | .61 | 1.17 | .61 | 1.70 | .54 |
| (WY) | 1986 | 1993 | 1993 | 1993 | 1988 | 1990 | 1987 | 1993 | 1987 | 1993 | 1988 |
| MIN | .059 | .15 | .091 | .14 | .092 | .054 | .035 | .11 | .056 | .046 | .054 |
| (WY) | 1992 | 1991 | 1990 | 1986 | 1987 | 1992 | 1984 | 1991 | 1991 | 1991 | 1993 |

SUMMARY STATISTICS

FOR 1992 CALENDAR YEAR

FOR 1993 WATER YEAR

WATER YEARS 1983 - 1993

| | | | |
|--------------------------|--------|--------|-------|
| ANNUAL TOTAL | 171.61 | 284.97 | |
| ANNUAL MEAN | .47 | .78 | .35 |
| HIGHEST ANNUAL MEAN | | | .78 |
| LOWEST ANNUAL MEAN | | | .17 |
| HIGHEST DAILY MEAN | 11 | Dec 31 | 12 |
| LOWEST DAILY MEAN | .03 | Mar 15 | .01 |
| ANNUAL SEVEN-DAY MINIMUM | .04 | Mar 24 | .02 |
| INSTANTANEOUS PEAK FLOW | | | 33 |
| INSTANTANEOUS PEAK STAGE | | | 1.94 |
| INSTANTANEOUS LOW FLOW | | | |
| ANNUAL RUNOFF (AC-FT) | 340 | 565 | 254 |
| ANNUAL RUNOFF (CFSM) | 7.81 | 13.0 | 5.84 |
| ANNUAL RUNOFF (INCHES) | 106.40 | 176.68 | 79.40 |
| 10 PERCENT EXCEEDS | .81 | 1.9 | .71 |
| 50 PERCENT EXCEEDS | .17 | .20 | .15 |
| 90 PERCENT EXCEEDS | .05 | .03 | .05 |

e Estimated

RIO ESPIRITU SANTO BASIN

50063800 RIO ESPIRITU SANTO NEAR RIO GRANDE, PR

LOCATION.--Lat 18°21'37", long 65°48'49", Hydrologic Unit 21010005, at left abutment, on downstream side of bridge on Highway 966, 0.1 mi (0.2 km) upstream from Quebrada Jiménez, and 1.9 mi (3.1 km) southeast of Río Grande.

DRAINAGE AREA.--8.62 mi² (22.33 km²).

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--February 1959 to April 1963 (annual low-flow and occasional measurements only), August 1966 to current year.

GAGE.--Water-stage recorder and crest-stage gage. Elevation of gage is 40 ft (12 m), from topographic map.

REMARKS.--Records poor.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993
DAILY MEAN VALUES

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|-------|------|-------|-------|-------|------|------|-------|------|------|-------|-------|------|
| 1 | e20 | e14 | e90 | e120 | e35 | e16 | e9.8 | e300 | e17 | e19 | e24 | e20 |
| 2 | e20 | e12 | e60 | e80 | e45 | e15 | e9.8 | e350 | e16 | e30 | e22 | e12 |
| 3 | e15 | e100 | e50 | e70 | e70 | e14 | e15 | e90 | e14 | e90 | e21 | e11 |
| 4 | e15 | e350 | e180 | e70 | e40 | e14 | e11 | e40 | e13 | e45 | e20 | e10 |
| 5 | e16 | e70 | e60 | e100 | e35 | e13 | e10 | e28 | e12 | e20 | e20 | e130 |
| 6 | e16 | e40 | e90 | e130 | e30 | e13 | e18 | e30 | e12 | e17 | e18 | e58 |
| 7 | e19 | e39 | e60 | e220 | e28 | e12 | e10 | e32 | e11 | e170 | e17 | e40 |
| 8 | e15 | e25 | e40 | e100 | e27 | e14 | e10 | e33 | e12 | e90 | e16 | e100 |
| 9 | e15 | e100 | e32 | e70 | e26 | e12 | e19 | e160 | e15 | e30 | e16 | 46 |
| 10 | e22 | e200 | e30 | e56 | e24 | e12 | e19 | e50 | e25 | e20 | e14 | e50 |
| 11 | e16 | e35 | e23 | e58 | e22 | e12 | e11 | e35 | e17 | e500 | e15 | e20 |
| 12 | e15 | e40 | e22 | e60 | e32 | e12 | e13 | e25 | e11 | e110 | e14 | e13 |
| 13 | e14 | e45 | e21 | e58 | e27 | e12 | e25 | e23 | e14 | e35 | e13 | e19 |
| 14 | e13 | e25 | e35 | e66 | e22 | e11 | e20 | e30 | e16 | e30 | e13 | e18 |
| 15 | e13 | e25 | e60 | e54 | e21 | e11 | e15 | e25 | e15 | e80 | e15 | e130 |
| 16 | e13 | e140 | e35 | e58 | e21 | e45 | e11 | e20 | e14 | e90 | e46 | e160 |
| 17 | e13 | e80 | e27 | e45 | e21 | e35 | e9.8 | e18 | e11 | e29 | e25 | e120 |
| 18 | e14 | e220 | e32 | e40 | e20 | e20 | e9.6 | e17 | e10 | e25 | e14 | e60 |
| 19 | e14 | e100 | e35 | e40 | e19 | e14 | e10 | e17 | e200 | e22 | e13 | e50 |
| 20 | e40 | e80 | e25 | e35 | e70 | e12 | e32 | e16 | e120 | e20 | e11 | e25 |
| 21 | e20 | e150 | e24 | e30 | e120 | e13 | e31 | e18 | e30 | e17 | e10 | e18 |
| 22 | e15 | e400 | e130 | e150 | e25 | e11 | e13 | e15 | e44 | e100 | e14 | e16 |
| 23 | e25 | e100 | e50 | e80 | e20 | e25 | e45 | e19 | e20 | e350 | e76 | e16 |
| 24 | e12 | e110 | e110 | e60 | e19 | e50 | e15 | e19 | e32 | e150 | e21 | e25 |
| 25 | e13 | e80 | e150 | e170 | e17 | e19 | e12 | e76 | e19 | e58 | e12 | e18 |
| 26 | e12 | e76 | e400 | e62 | e17 | e15 | e11 | e60 | e17 | e54 | e10 | e15 |
| 27 | e13 | e350 | e140 | e90 | e17 | e14 | e15 | e115 | e14 | e50 | e9.2 | e35 |
| 28 | e15 | e300 | e180 | e100 | e16 | e12 | e25 | e70 | e15 | e45 | e9.2 | e50 |
| 29 | e12 | e250 | e350 | e220 | --- | e11 | e40 | e23 | e14 | e30 | e9.8 | e45 |
| 30 | e11 | e230 | e300 | e60 | --- | e10 | e200 | e26 | e40 | e25 | e40 | e100 |
| 31 | e12 | --- | e130 | e40 | --- | e10 | --- | e20 | --- | e25 | e30 | --- |
| TOTAL | 498 | 3786 | 2971 | 2592 | 886 | 509 | 695.0 | 1800 | 820 | 2376 | 608.2 | 1430 |
| MEAN | 16.1 | 126 | 95.8 | 83.6 | 31.6 | 16.4 | 23.2 | 58.1 | 27.3 | 76.6 | 19.6 | 47.7 |
| MAX | 40 | 400 | 400 | 220 | 120 | 50 | 200 | 350 | 200 | 500 | 76 | 160 |
| MIN | 11 | 12 | 21 | 30 | 16 | 10 | 9.6 | 15 | 10 | 17 | 9.2 | 10 |
| AC-FT | 988 | 7510 | 5890 | 5140 | 1760 | 1010 | 1380 | 3570 | 1630 | 4710 | 1210 | 2840 |
| CFSM | 1.86 | 14.6 | 11.1 | 9.70 | 3.67 | 1.90 | 2.69 | 6.74 | 3.17 | 8.89 | 2.28 | 5.53 |
| IN. | 2.15 | 16.34 | 12.82 | 11.19 | 3.82 | 2.20 | 3.00 | 7.77 | 3.54 | 10.25 | 2.62 | 6.17 |

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1966 - 1993, BY WATER YEAR (WY)

| | | | | | | | | | | | | |
|------|------|------|------|------|------|------|------|------|------|------|------|------|
| MEAN | 63.2 | 87.1 | 75.8 | 53.2 | 50.2 | 40.6 | 45.1 | 70.4 | 47.1 | 52.5 | 61.0 | 56.8 |
| MAX | 202 | 196 | 179 | 119 | 117 | 153 | 119 | 185 | 120 | 114 | 123 | 191 |
| (WY) | 1971 | 1985 | 1971 | 1969 | 1982 | 1990 | 1981 | 1979 | 1970 | 1983 | 1988 | 1989 |
| MIN | 12.3 | 29.1 | 18.1 | 18.5 | 10.8 | 13.0 | 6.27 | 14.9 | 10.0 | 11.1 | 19.6 | 17.7 |
| (WY) | 1969 | 1982 | 1990 | 1977 | 1983 | 1977 | 1984 | 1973 | 1975 | 1975 | 1993 | 1971 |

| SUMMARY STATISTICS | FOR 1992 CALENDAR YEAR | | | FOR 1993 WATER YEAR | | | WATER YEARS 1966 - 1993 | | |
|--------------------------|------------------------|--|--|---------------------|--|--|-------------------------|--|--|
| ANNUAL TOTAL | 20503.5 | | | 18971.2 | | | | | |
| ANNUAL MEAN | 56.0 | | | 52.0 | | | 59.1 | | |
| HIGHEST ANNUAL MEAN | | | | | | | 98.6 | | |
| LOWEST ANNUAL MEAN | | | | | | | 37.3 | | |
| HIGHEST DAILY MEAN | 1010 | | | 500 | | | 2600 | | |
| LOWEST DAILY MEAN | 5.0 | | | 9.2 | | | 4.1 | | |
| ANNUAL SEVEN-DAY MINIMUM | 6.1 | | | 11 | | | 4.4 | | |
| INSTANTANEOUS PEAK FLOW | | | | | | | 19200 | | |
| INSTANTANEOUS PEAK STAGE | | | | | | | 15.74 | | |
| ANNUAL RUNOFF (AC-FT) | 40670 | | | 37630 | | | 42780 | | |
| ANNUAL RUNOFF (CFSM) | 6.50 | | | 6.03 | | | 6.85 | | |
| ANNUAL RUNOFF (INCHES) | 88.48 | | | 81.87 | | | 93.08 | | |
| 10 PERCENT EXCEEDS | 140 | | | 124 | | | 125 | | |
| 50 PERCENT EXCEEDS | 21 | | | 25 | | | 26 | | |
| 90 PERCENT EXCEEDS | 9.0 | | | 12 | | | 11 | | |

e Estimated

RIO ESPIRITU SANTO BASIN

50063800 RIO ESPIRITU SANTO NEAR RIO GRANDE, PR--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Water years 1958, 1961-66, 1968 to current year.

WATER-QUALITY DATA, WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993

| DATE | TIME | DIS-CHARGE, INST. CUBIC FEET PER SECOND | SPE-CIFIC CON-DUCT-ANCE (US/CM) | PH WATER WHOLE FIELD (STAND-ARD UNITS) | TEMPER-ATURE WATER (DEG C) | TUR-BID-ITY (NTU) | OXYGEN, DIS-SOLVED (MG/L) | OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION) | OXYGEN DEMAND, CHEM-ICAL (HIGH LEVEL) (MG/L) | COLI-FORM, FECAL, 0.45 UM-MF (COLS./ 100 ML) | STREP-TOCOCCI, FECAL, (COLS. PER 100 ML) |
|----------|------|---|---------------------------------|--|----------------------------|-------------------|---------------------------|---|--|--|--|
| OCT 1992 | | | | | | | | | | | |
| 08... | 1250 | 14 | 100 | 8.0 | 28.5 | 2.0 | 7.8 | 100 | <10 | 240 | 230 |
| DEC | | | | | | | | | | | |
| 16... | 1055 | 22 | 106 | 7.4 | 22.2 | 4.2 | 8.3 | 110 | <10 | 410 | 30 |
| FEB 1993 | | | | | | | | | | | |
| 22... | 1155 | 18 | 86 | 7.0 | 21.2 | 5.1 | 8.3 | 112 | 19 | K700 | 290 |
| APR | | | | | | | | | | | |
| 15... | 1200 | 15 | 127 | 6.8 | 26.0 | 3.5 | 5.5 | 66 | 11 | K130 | 2200 |
| JUN | | | | | | | | | | | |
| 10... | 1230 | 39 | 130 | 6.9 | 29.1 | 2.7 | 6.0 | 76 | <10 | 280 | 450 |
| AUG | | | | | | | | | | | |
| 09... | 1200 | 16 | 149 | 6.8 | 28.3 | 2.9 | 5.3 | 67 | <10 | 3500 | 2700 |

| DATE | HARD-NESS TOTAL (MG/L AS CaCO3) | HARD-NESS NONCARB WH WAT TOT FLD (MG/L AS CaCO3) | CALCIUM DIS-SOLVED (MG/L AS Ca) | MAGNE-SIUM, DIS-SOLVED (MG/L AS Mg) | SODIUM, DIS-SOLVED (MG/L AS Na) | SODIUM AD-SORP-TION RATIO | POTAS-SIUM, DIS-SOLVED (MG/L AS K) | ALKA-LINITY WAT WH TOT FET FIELD (MG/L AS CaCO3) | SULFIDE TOTAL (MG/L AS S) | SULFATE DIS-SOLVED (MG/L AS SO4) | CHLO-RIDE, DIS-SOLVED (MG/L AS Cl) |
|----------|---------------------------------|--|---------------------------------|-------------------------------------|---------------------------------|---------------------------|------------------------------------|--|---------------------------|----------------------------------|------------------------------------|
| OCT 1992 | | | | | | | | | | | |
| 08... | 40 | 0 | 8.8 | 4.3 | 8.7 | 0.6 | 0.50 | 43 | <0.5 | 1.7 | 10 |
| DEC | | | | | | | | | | | |
| 16... | -- | -- | -- | -- | -- | -- | -- | 30 | -- | -- | -- |
| FEB 1993 | | | | | | | | | | | |
| 22... | -- | -- | -- | -- | -- | -- | -- | 21 | -- | -- | -- |
| APR | | | | | | | | | | | |
| 15... | 30 | 1 | 6.3 | 3.4 | 7.1 | 0.6 | 0.70 | 33 | <0.5 | 2.4 | 10 |
| JUN | | | | | | | | | | | |
| 10... | -- | -- | -- | -- | -- | -- | -- | 23 | -- | -- | -- |
| AUG | | | | | | | | | | | |
| 09... | 44 | 0 | 9.5 | 4.9 | 9.6 | 0.6 | 5.5 | 47 | -- | 1.9 | 15 |

| DATE | FLUO-RIDE, DIS-SOLVED (MG/L AS F) | SILICA, DIS-SOLVED (MG/L AS SiO2) | SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L) | SOLIDS, DIS-SOLVED (TONS PER DAY) | RESIDUE TOTAL AT 105 DEG. C, SUS-PENDED (MG/L) | NITRO-GEN, NITRATE TOTAL (MG/L AS N) | NITRO-GEN, NITRITE TOTAL (MG/L AS N) | NITRO-GEN, NO2+NO3 TOTAL (MG/L AS N) | NITRO-GEN, AMMONIA TOTAL (MG/L AS N) | NITRO-GEN, ORGANIC TOTAL (MG/L AS N) |
|----------|-----------------------------------|-----------------------------------|---|-----------------------------------|--|--------------------------------------|--------------------------------------|--------------------------------------|--------------------------------------|--------------------------------------|
| OCT 1992 | | | | | | | | | | |
| 08... | <0.10 | 22 | 82 | 3.18 | 3 | 0.080 | 0.020 | 0.100 | 0.040 | 0.36 |
| DEC | | | | | | | | | | |
| 16... | -- | -- | -- | -- | <1 | 0.160 | 0.140 | 0.300 | 5.80 | 2.40 |
| FEB 1993 | | | | | | | | | | |
| 22... | -- | -- | -- | -- | <1 | -- | <0.010 | 0.100 | 0.010 | 0.19 |
| APR | | | | | | | | | | |
| 15... | <0.10 | 18 | 68 | 2.81 | 12 | -- | <0.010 | 0.100 | 0.040 | 0.26 |
| JUN | | | | | | | | | | |
| 10... | -- | -- | -- | -- | 9 | -- | <0.010 | 0.100 | 0.010 | 0.29 |
| AUG | | | | | | | | | | |
| 09... | <0.10 | 23 | 100 | 4.32 | 7 | -- | <0.010 | 0.100 | 0.010 | 0.19 |

K = non-ideal count

RIO ESPIRITU SANTO BASIN

50063800 RIO ESPIRITU SANTO NEAR RIO GRANDE, PR--Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993

| DATE | NITRO- GEN, AM- MONIA + ORGANIC TOTAL (MG/L AS N) | NITRO- GEN, TOTAL (MG/L AS N) | NITRO- GEN, TOTAL (MG/L AS NO3) | PHOS- PHORUS TOTAL (MG/L AS P) | ARSENIC TOTAL (UG/L AS AS) | BARIUM, TOTAL RECOV- ERABLE (UG/L AS BA) | BORON, TOTAL RECOV- ERABLE (UG/L AS B) | CADMIUM TOTAL RECOV- ERABLE (UG/L AS CD) | CHRO- MIUM, TOTAL RECOV- ERABLE (UG/L AS CR) | COPPER, TOTAL RECOV- ERABLE (UG/L AS CU) |
|-----------|---|---|---|--|-------------------------------------|---|---|---|--|---|
| OCT 1992 | | | | | | | | | | |
| 08... | 0.40 | -- | -- | 0.040 | <1 | <100 | 30 | <1 | <1 | 12 |
| DEC 16... | 8.2 | 8.5 | 32 | 1.50 | -- | -- | -- | -- | -- | -- |
| FEB 1993 | | | | | | | | | | |
| 22... | 0.20 | -- | -- | 0.010 | -- | -- | -- | -- | -- | -- |
| APR 15... | 0.30 | -- | -- | <0.010 | <1 | <100 | 20 | <1 | <1 | <10 |
| JUN 10... | 0.30 | -- | -- | 0.080 | -- | -- | -- | -- | -- | -- |
| AUG 09... | 0.20 | -- | -- | <0.010 | -- | -- | -- | -- | -- | -- |

[illegible]

RIO ESPIRITU SANTO BASIN

50064200 RIO GRANDE NEAR EL VERDE, PR

LOCATION.--Lat 18°20'54", long 65°50'30", Hydrologic Unit 21010005, on left bank 250 ft (7.6 m) upstream side of bridge at Hwy 960, 0.05 mi (0.08 km) southwest of junction of Highways 956 and 960, 1.1 mi (1.8 km) west of El Verde, and 2.7 mi (4.3 km) south of Río Grande.

DRAINAGE AREA.--7.31 mi² (18.93 km²).

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--May 1967 to December 1970, January 1972 to September 1982, August 1990 to current year.

GAGE.--Water-stage recorder. Elevation of gage is 131 ft (40 m), from topographic map.

REMARKS.--Records fair. Gage-height and precipitation satellite telemetry at station.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993
DAILY MEAN VALUES

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|-------|-------|--------|------|------|------|-------|-------|--------|-------|--------|-------|-------|
| 1 | 13 | 8.5 | 43 | 85 | 21 | 9.7 | 5.6 | 208 | 10 | 11 | 12 | 9.8 |
| 2 | 13 | 7.7 | 33 | 49 | 28 | 9.3 | 5.6 | 218 | 9.6 | 16 | 11 | 6.8 |
| 3 | 9.7 | 54 | 29 | 44 | 48 | 9.1 | 9.4 | 54 | 8.5 | 63 | 11 | 6.2 |
| 4 | 9.5 | 197 | 98 | 45 | 26 | 8.8 | 7.3 | 24 | 7.9 | 23 | 10 | 5.3 |
| 5 | 10 | 44 | 42 | 67 | 21 | 8.4 | 5.9 | 17 | 7.3 | 11 | 10 | 75 |
| 6 | 9.9 | 22 | 56 | 82 | 19 | 8.3 | 11 | 19 | 7.1 | 9.9 | 9.7 | 31 |
| 7 | 12 | 21 | 27 | 134 | 18 | 8.1 | 5.8 | 20 | 6.7 | 103 | 9.0 | 23 |
| 8 | 10 | 12 | 22 | 57 | 17 | 8.6 | 5.8 | 20 | 7.1 | 51 | 9.0 | 61 |
| 9 | 10 | 28 | 20 | 43 | 16 | 7.9 | 11 | 100 | 8.0 | 17 | 8.4 | 27 |
| 10 | 14 | 91 | 18 | 33 | 15 | 7.6 | 11 | 33 | 12 | 12 | 7.8 | 30 |
| 11 | 10 | 17 | 17 | 34 | 14 | 7.4 | 5.9 | 21 | 10 | 373 | 8.1 | 12 |
| 12 | 9.3 | 20 | 16 | 35 | 20 | 7.2 | 7.2 | 16 | 6.8 | 50 | 7.5 | 7.3 |
| 13 | 8.7 | 24 | 15 | 32 | 17 | 7.1 | 15 | 14 | 8.7 | 22 | 6.9 | 11 |
| 14 | 8.7 | 13 | 20 | 37 | 14 | 7.3 | 11 | 22 | 10 | 17 | 6.7 | 10 |
| 15 | 8.5 | 13 | 42 | 29 | 13 | 7.0 | 8.9 | 16 | 8.9 | 50 | 8.1 | 75 |
| 16 | 8.5 | 67 | 19 | 31 | 13 | 27 | 7.5 | 12 | 8.2 | 56 | 26 | 90 |
| 17 | 8.7 | 35 | 16 | 24 | 13 | 21 | 6.2 | 11 | 6.7 | 18 | 13 | 72 |
| 18 | 9.2 | 109 | 22 | 22 | 13 | 12 | 5.4 | 11 | 6.1 | 14 | 7.4 | 37 |
| 19 | 9.3 | 47 | 23 | 22 | 12 | 8.7 | 5.3 | 10 | 138 | 13 | 6.9 | 23 |
| 20 | 22 | 35 | 15 | 20 | 52 | 7.5 | 19 | 9.8 | 78 | 12 | 6.2 | 11 |
| 21 | 9.3 | 82 | 14 | 18 | 77 | 7.9 | 18 | 11 | 16 | 10 | 5.7 | 9.9 |
| 22 | 8.1 | 225 | 73 | 85 | 24 | 6.7 | 7.2 | 9.5 | 28 | 67 | 7.8 | 9.3 |
| 23 | 15 | 64 | 29 | 54 | 14 | 17 | 27 | 12 | 14 | 210 | 41 | 13 |
| 24 | 8.6 | 68 | 74 | 32 | 12 | 33 | 9.9 | 12 | 20 | 109 | 9.0 | 15 |
| 25 | 7.4 | 45 | 97 | 105 | 11 | 12 | 6.5 | 47 | 12 | 34 | 6.5 | 8.3 |
| 26 | 7.1 | 41 | 225 | 34 | 11 | 9.3 | 6.1 | 37 | 9.6 | 33 | 6.7 | 7.3 |
| 27 | 7.6 | 189 | 72 | 55 | 11 | 8.7 | 7.2 | 87 | 8.8 | 29 | 5.5 | 32 |
| 28 | 8.6 | 144 | 97 | 72 | 10 | 6.8 | 14 | 32 | 9.2 | 23 | 5.3 | 30 |
| 29 | 7.0 | 124 | 198 | 145 | --- | 6.3 | 22 | 14 | 8.9 | 15 | 5.6 | 24 |
| 30 | 7.1 | 112 | 159 | 33 | --- | 6.2 | 137 | 16 | 26 | 14 | 23 | 63 |
| 31 | 7.4 | --- | 92 | 24 | --- | 6.4 | --- | 12 | --- | 14 | 17 | --- |
| TOTAL | 307.2 | 1959.2 | 1723 | 1582 | 580 | 318.3 | 424.7 | 1145.3 | 518.1 | 1499.9 | 327.8 | 835.2 |
| MEAN | 9.91 | 65.3 | 55.6 | 51.0 | 20.7 | 10.3 | 14.2 | 36.9 | 17.3 | 48.4 | 10.6 | 27.8 |
| MAX | 22 | 225 | 225 | 145 | 77 | 33 | 137 | 218 | 138 | 373 | 41 | 90 |
| MIN | 7.0 | 7.7 | 14 | 18 | 10 | 6.2 | 5.3 | 9.5 | 6.1 | 9.9 | 5.3 | 5.3 |
| AC-FT | 609 | 3890 | 3420 | 3140 | 1150 | 631 | 842 | 2270 | 1030 | 2980 | 650 | 1660 |
| CFSM | 1.36 | 8.93 | 7.60 | 6.98 | 2.83 | 1.40 | 1.94 | 5.05 | 2.36 | 6.62 | 1.45 | 3.81 |
| IN. | 1.56 | 9.97 | 8.77 | 8.05 | 2.95 | 1.62 | 2.16 | 5.83 | 2.64 | 7.63 | 1.67 | 4.25 |

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1967 - 1993, BY WATER YEAR (WY)

| | MEAN | 64.1 | 73.7 | 51.8 | 44.0 | 31.3 | 22.5 | 30.3 | 58.8 | 33.2 | 38.6 | 44.5 | 49.6 |
|------|------|------|------|------|------|------|------|------|------|------|------|------|------|
| MAX | 392 | 172 | 140 | 151 | 76.4 | 54.4 | 119 | 203 | 86.5 | 109 | 90.0 | 153 | |
| (WY) | 1971 | 1970 | 1971 | 1969 | 1969 | 1969 | 1978 | 1969 | 1968 | 1969 | 1968 | 1975 | |
| MIN | 8.45 | 14.3 | 13.8 | 10.1 | 5.80 | 4.50 | 8.55 | 10.2 | 6.22 | 9.05 | 7.39 | 12.4 | |
| (WY) | 1969 | 1981 | 1968 | 1977 | 1977 | 1977 | 1975 | 1974 | 1975 | 1991 | 1991 | 1967 | |

SUMMARY STATISTICS

FOR 1992 CALENDAR YEAR

FOR 1993 WATER YEAR

WATER YEARS 1967 - 1993

| | | | |
|--------------------------|---------|---------|-------------|
| ANNUAL TOTAL | 11346.3 | 11220.7 | |
| ANNUAL MEAN | 31.0 | 30.7 | |
| HIGHEST ANNUAL MEAN | | | 43.4 |
| LOWEST ANNUAL MEAN | | | 87.1 |
| HIGHEST DAILY MEAN | 405 | 373 | 25.8 |
| LOWEST DAILY MEAN | 3.7 | 5.3 | 1991 |
| ANNUAL SEVEN-DAY MINIMUM | 4.1 | 6.5 | May 21 1969 |
| INSTANTANEOUS PEAK FLOW | | 2980 | 2.2 |
| INSTANTANEOUS PEAK STAGE | | 11.62 | Aug 15 1991 |
| INSTANTANEOUS LOW FLOW | | 4.8 | 2.5 |
| ANNUAL RUNOFF (AC-FT) | 22510 | 22260 | Aug 10 1991 |
| ANNUAL RUNOFF (CFSM) | 4.24 | 4.21 | Sep 16 1975 |
| ANNUAL RUNOFF (INCHES) | 57.74 | 57.10 | Sep 16 1975 |
| 10 PERCENT EXCEEDS | 71 | 75 | 1.6 |
| 50 PERCENT EXCEEDS | 16 | 14 | Mar 13 1977 |
| 90 PERCENT EXCEEDS | 6.5 | 7.1 | 5.93 |
| | | | 80.58 |
| | | | 84 |
| | | | 18 |
| | | | 7.2 |

RIO MAMEYES BASIN

50065500 RIO MAMEYES NEAR SABANA, PR

LOCATION.--Lat 18°19'46", long 65°45'04", Hydrologic Unit 21010005, on left bank, at bridge on Highway 988, 1.4 mi (2.3 km) west of Sabana, 2.0 mi (3.2 km) downstream from Río de la Mina, and 3.2 mi (5.1 km) southeast of Mameyes.

DRAINAGE AREA.--6.88 mi² (17.82 km²).

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--August 1967 to December 1973, June 1983 to current year.

GAGE.--Water-stage recorder and crest-stage gage. Elevation of gage is 275 ft (84 m), from topographic map.

REMARKS.--Records fair except those for estimated daily discharges, which are poor. Gage-height and precipitation satellite telemetry at station.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993
DAILY MEAN VALUES

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|-------|------|-------|-------|-------|------|------|------|-------|------|-------|------|------|
| 1 | 22 | 40 | 52 | 108 | 46 | e28 | 28 | 145 | 75 | 34 | 50 | e32 |
| 2 | 19 | 51 | 44 | 89 | 47 | e39 | 26 | 250 | 53 | 51 | 56 | e50 |
| 3 | 17 | 84 | 42 | 67 | 50 | e32 | 51 | 127 | 48 | 121 | 53 | e45 |
| 4 | 23 | 331 | 80 | e56 | 48 | e26 | 24 | 46 | 44 | 42 | 51 | e84 |
| 5 | 25 | 68 | 41 | e94 | 42 | 25 | 25 | 43 | 39 | 39 | 47 | e45 |
| 6 | 49 | 65 | 86 | e96 | 39 | 24 | 23 | 32 | 37 | 36 | 46 | e110 |
| 7 | 28 | 48 | 37 | e72 | 37 | 24 | 20 | 32 | 42 | 105 | 46 | e100 |
| 8 | 25 | 40 | 33 | e54 | 35 | 29 | 19 | 74 | 41 | 93 | 44 | e52 |
| 9 | 26 | 48 | 30 | e46 | 32 | 23 | 62 | e205 | 42 | 66 | 42 | e49 |
| 10 | 26 | 141 | 28 | e46 | 31 | 22 | 35 | e62 | 74 | 49 | 44 | e35 |
| 11 | 21 | 36 | 28 | e45 | 30 | 21 | 22 | e35 | 37 | 342 | 47 | e38 |
| 12 | 22 | 39 | 25 | e43 | 97 | 20 | 22 | e27 | 32 | 78 | 41 | e36 |
| 13 | 20 | 35 | 25 | 50 | 44 | 26 | 31 | e27 | 66 | 59 | 37 | e35 |
| 14 | 19 | 49 | 28 | 52 | 34 | 21 | 26 | 159 | 39 | 83 | 34 | e27 |
| 15 | 18 | 39 | 35 | 47 | 30 | 25 | 22 | 46 | 74 | 158 | 45 | e60 |
| 16 | 19 | 85 | 26 | 45 | 27 | 83 | 38 | 35 | 49 | 152 | 76 | e400 |
| 17 | 19 | 62 | 23 | 34 | 28 | 45 | 36 | 30 | 31 | 80 | 54 | e100 |
| 18 | 19 | 181 | 25 | 29 | 28 | 32 | 51 | 30 | 37 | 69 | 69 | e92 |
| 19 | 19 | 65 | 24 | 29 | 25 | 68 | 32 | e28 | 274 | 60 | 73 | e30 |
| 20 | 31 | 79 | 24 | 27 | 161 | 34 | 43 | e33 | e126 | 50 | 43 | e26 |
| 21 | 21 | 70 | 23 | 24 | 129 | 26 | 32 | e31 | e43 | 46 | 34 | e24 |
| 22 | 46 | 199 | 71 | 174 | 42 | 22 | 21 | e28 | 77 | 101 | 53 | e23 |
| 23 | 30 | 68 | 31 | 54 | 60 | 76 | 20 | e28 | 42 | 218 | 66 | e28 |
| 24 | 21 | 63 | 68 | 34 | 40 | 95 | 18 | e31 | 39 | 103 | 38 | e22 |
| 25 | 20 | 53 | 70 | 104 | 32 | 35 | 19 | 92 | 44 | 69 | 32 | e52 |
| 26 | 19 | 40 | 246 | 36 | e30 | 40 | 28 | 50 | 51 | 73 | 30 | e21 |
| 27 | 19 | 101 | 73 | 57 | e32 | 28 | 32 | 236 | 39 | 66 | 27 | e40 |
| 28 | 18 | 108 | 87 | 105 | e28 | 29 | 34 | 65 | 33 | 50 | 29 | e30 |
| 29 | 25 | 145 | 678 | 178 | --- | 24 | 65 | 40 | 45 | 47 | 28 | e46 |
| 30 | 27 | 105 | 262 | 62 | --- | 23 | 526 | 59 | 89 | 47 | 39 | e52 |
| 31 | 61 | --- | 146 | 53 | --- | 24 | --- | 68 | --- | 48 | 65 | --- |
| TOTAL | 774 | 2538 | 2491 | 2010 | 1304 | 1069 | 1431 | 2194 | 1762 | 2635 | 1439 | 1784 |
| MEAN | 25.0 | 84.6 | 80.4 | 64.8 | 46.6 | 34.5 | 47.7 | 70.8 | 58.7 | 85.0 | 46.4 | 59.5 |
| MAX | 61 | 331 | 678 | 178 | 161 | 95 | 526 | 250 | 274 | 342 | 76 | 400 |
| MIN | 17 | 35 | 23 | 24 | 25 | 20 | 18 | 27 | 31 | 34 | 27 | 21 |
| AC-FT | 1540 | 5030 | 4940 | 3990 | 2590 | 2120 | 2840 | 4350 | 3490 | 5230 | 2850 | 3540 |
| CFSM | 3.63 | 12.3 | 11.7 | 9.42 | 6.77 | 5.01 | 6.93 | 10.3 | 8.54 | 12.4 | 6.75 | 8.64 |
| IN. | 4.18 | 13.72 | 13.47 | 10.87 | 7.05 | 5.78 | 7.74 | 11.86 | 9.53 | 14.25 | 7.78 | 9.65 |

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1967 - 1993, BY WATER YEAR (WY)

| | MEAN | 84.8 | 62.9 | 55.2 | 41.0 | 39.5 | 42.1 | 68.9 | 57.2 | 51.7 | 54.6 | 57.3 |
|------|------|------|------|------|------|------|------|------|------|------|------|------|
| MAX | 240 | 191 | 164 | 105 | 68.0 | 79.7 | 83.1 | 147 | 112 | 93.4 | 81.4 | 166 |
| (WY) | 1971 | 1985 | 1971 | 1969 | 1988 | 1990 | 1973 | 1970 | 1970 | 1969 | 1988 | 1989 |
| MIN | 20.3 | 36.3 | 16.6 | 25.0 | 21.7 | 18.1 | 14.5 | 18.7 | 12.4 | 20.5 | 28.0 | 26.6 |
| (WY) | 1969 | 1974 | 1990 | 1985 | 1968 | 1968 | 1984 | 1973 | 1985 | 1971 | 1985 | 1986 |

| SUMMARY STATISTICS | FOR 1992 CALENDAR YEAR | FOR 1993 WATER YEAR | WATER YEARS 1967 - 1993 |
|--------------------------|------------------------|---------------------|-------------------------|
| ANNUAL TOTAL | 21127 | 21431 | |
| ANNUAL MEAN | 57.7 | 58.7 | 57.8 |
| HIGHEST ANNUAL MEAN | | | 78.0 |
| LOWEST ANNUAL MEAN | | | 41.2 |
| HIGHEST DAILY MEAN | 754 | May 1 | 678 |
| LOWEST DAILY MEAN | 16 | Apr 6 | 17 |
| ANNUAL SEVEN-DAY MINIMUM | 19 | Feb 29 | 19 |
| INSTANTANEOUS PEAK FLOW | | | 10600 |
| INSTANTANEOUS PEAK STAGE | | | 10.38 |
| INSTANTANEOUS LOW FLOW | | | 16 |
| ANNUAL RUNOFF (AC-FT) | 41910 | 42510 | 41890 |
| ANNUAL RUNOFF (CFSM) | 8.39 | 8.53 | 8.41 |
| ANNUAL RUNOFF (INCHES) | 114.23 | 115.88 | 114.20 |
| 10 PERCENT EXCEEDS | 106 | 102 | 104 |
| 50 PERCENT EXCEEDS | 39 | 42 | 34 |
| 90 PERCENT EXCEEDS | 20 | 23 | 16 |

e Estimated

RIO SABANA BASIN

50067000 RIO SABANA AT SABANA, PR

LOCATION.--Lat 18°19'52", long 65°43'52", Hydrologic Unit 21010005, on right bank along Highway 988, 0.3 mi (0.5 km) north of junction of Highways 988 and 983 in Sabana, and 3.3 mi (5.3 km) south of Luquillo.

DRAINAGE AREA.--3.96 mi² (10.26 km²).

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--October 1979 to current year.

GAGE.--Water-stage recorder and crest-stage gage. Elevation of gage is 260 ft (80 m), from topographic map.

REMARKS.--Records fair except those for estimated daily discharges, which are poor.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993
DAILY MEAN VALUES

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|-------|-------|------|-------|------|-------|-------|-------|-------|-------|-------|-------|-------|
| 1 | 8.9 | 11 | 20 | 29 | 15 | 7.4 | 2.3 | 27 | 10 | 7.6 | 8.1 | 10 |
| 2 | 7.4 | 17 | 18 | 24 | 16 | 8.1 | 2.3 | 33 | 6.9 | 8.9 | 7.6 | 3.8 |
| 3 | 7.0 | 14 | 18 | 21 | 17 | 6.9 | 2.8 | 18 | 6.3 | 29 | 7.2 | 5.0 |
| 4 | 8.6 | 183 | 20 | 18 | 16 | 6.4 | 2.4 | 8.7 | 5.9 | 9.7 | 7.0 | 10 |
| 5 | 15 | 25 | 15 | 32 | 14 | 5.9 | 2.6 | 12 | 5.5 | 6.9 | 6.7 | 17 |
| 6 | 74 | 17 | 43 | 36 | 14 | 5.7 | 2.3 | 7.1 | 5.4 | 7.2 | 6.6 | 7.3 |
| 7 | 12 | 16 | 15 | 27 | 13 | 5.2 | e2.6 | 4.5 | 5.2 | 35 | 6.5 | 78 |
| 8 | 11 | 13 | 14 | 17 | 13 | 5.3 | e2.6 | 127 | 5.6 | 20 | 6.1 | 34 |
| 9 | 12 | 12 | 13 | 14 | 12 | 4.8 | e2.6 | 185 | 6.0 | 8.8 | 6.3 | 13 |
| 10 | 9.3 | 28 | 12 | 14 | 12 | 5.4 | e2.2 | 26 | 15 | 7.5 | 6.3 | 6.5 |
| 11 | 7.5 | 11 | 13 | 13 | 13 | 3.9 | e2.4 | 17 | 5.9 | 234 | 5.9 | 5.8 |
| 12 | 7.7 | 11 | 11 | 13 | 29 | 3.9 | e2.2 | 9.0 | 6.6 | 23 | 5.4 | 7.3 |
| 13 | 7.7 | 18 | 13 | 12 | 18 | 4.7 | e2.2 | 7.2 | 20 | 12 | 5.3 | 6.2 |
| 14 | 7.2 | 44 | 19 | 15 | 13 | 3.9 | e2.1 | 27 | 12 | 11 | 5.0 | 4.8 |
| 15 | 7.5 | 19 | 17 | 13 | 11 | 3.7 | e2.1 | 8.5 | 18 | 74 | 5.8 | 8.6 |
| 16 | 7.5 | 30 | 14 | 14 | 11 | 9.7 | e2.6 | 6.4 | 12 | 59 | 9.0 | 212 |
| 17 | 13 | 19 | 11 | 13 | 11 | 5.2 | e3.0 | 5.8 | 5.9 | 14 | 6.0 | 16 |
| 18 | 9.9 | 66 | 12 | 12 | 12 | 3.6 | e4.0 | 17 | 5.8 | 11 | 19 | 14 |
| 19 | 7.2 | 25 | 14 | 12 | 11 | 7.7 | e6.0 | 6.1 | 241 | 10 | 15 | 8.1 |
| 20 | 7.7 | 32 | 12 | 12 | 14 | 3.4 | e4.0 | 6.0 | 65 | 9.1 | 5.1 | 6.5 |
| 21 | 6.6 | 21 | 11 | 12 | 24 | 2.8 | e2.3 | 5.5 | 13 | 8.8 | 4.6 | 5.9 |
| 22 | 7.0 | 50 | 26 | 46 | 11 | 2.6 | 2.0 | 5.4 | 18 | 36 | 5.0 | 6.3 |
| 23 | 6.8 | 22 | 13 | 22 | 11 | 3.3 | 2.0 | 6.5 | 10 | 170 | 7.9 | 12 |
| 24 | 6.6 | 18 | 19 | 14 | 10 | 7.2 | 2.0 | 21 | 8.5 | 25 | 7.9 | 9.1 |
| 25 | 6.6 | 16 | 20 | 20 | 9.1 | 3.5 | 1.9 | 31 | 7.8 | 15 | 4.7 | 24 |
| 26 | 6.5 | 15 | 140 | 14 | 8.7 | 2.9 | 2.1 | 13 | 7.4 | 12 | 4.2 | 8.3 |
| 27 | 6.5 | 35 | 25 | 18 | 8.7 | 2.6 | 2.8 | 126 | 6.9 | 11 | 4.1 | 15 |
| 28 | 6.2 | 55 | 22 | 63 | 7.9 | 2.7 | 2.3 | 22 | 7.4 | 9.9 | 4.1 | 13 |
| 29 | 10 | 73 | 454 | 61 | --- | 2.7 | 6.1 | 10 | 8.5 | 9.3 | 4.1 | 53 |
| 30 | 11 | 49 | 152 | 19 | --- | 2.5 | 278 | 10 | 21 | 8.8 | 5.3 | 46 |
| 31 | 37 | --- | 38 | 16 | --- | 2.3 | --- | 8.0 | --- | 8.6 | 12 | --- |
| TOTAL | 358.9 | 965 | 1244 | 666 | 375.4 | 145.9 | 392.8 | 816.7 | 572.5 | 912.1 | 213.8 | 666.5 |
| MEAN | 11.6 | 32.2 | 40.1 | 21.5 | 13.4 | 4.71 | 13.1 | 26.3 | 19.1 | 29.4 | 6.90 | 22.2 |
| MAX | 74 | 183 | 454 | 63 | 29 | 9.7 | 278 | 185 | 241 | 234 | 19 | 212 |
| MIN | 6.2 | 11 | 11 | 12 | 7.9 | 2.3 | 1.9 | 4.5 | 5.2 | 6.9 | 4.1 | 3.8 |
| AC-FT | 712 | 1910 | 2470 | 1320 | 745 | 289 | 779 | 1620 | 1140 | 1810 | 424 | 1320 |
| CFSM | 2.92 | 8.12 | 10.1 | 5.43 | 3.39 | 1.19 | 3.31 | 6.65 | 4.82 | 7.43 | 1.74 | 5.61 |
| IN. | 3.37 | 9.07 | 11.69 | 6.26 | 3.53 | 1.37 | 3.69 | 7.67 | 5.38 | 8.57 | 2.01 | 6.26 |

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1980 - 1993, BY WATER YEAR (WY)

| | MEAN | 21.9 | 32.5 | 25.3 | 13.2 | 11.8 | 12.1 | 12.9 | 34.6 | 21.8 | 15.6 | 17.0 | 17.1 |
|------|------|------|------|------|------|------|------|------|------|------|------|------|------|
| MAX | 66.4 | 79.7 | 64.1 | 33.0 | 22.2 | 36.0 | 33.5 | 63.9 | 50.6 | 31.3 | 32.7 | 56.3 | |
| (WY) | 1986 | 1988 | 1982 | 1992 | 1988 | 1987 | 1990 | 1982 | 1987 | 1989 | 1988 | 1989 | |
| MIN | 6.48 | 8.15 | 3.92 | 6.12 | 2.94 | 3.78 | 2.20 | 14.8 | 4.70 | 5.84 | 6.39 | 7.23 | |
| (WY) | 1983 | 1981 | 1990 | 1986 | 1983 | 1980 | 1984 | 1990 | 1985 | 1986 | 1985 | 1987 | |

SUMMARY STATISTICS

FOR 1992 CALENDAR YEAR

FOR 1993 WATER YEAR

WATER YEARS 1980 - 1993

| | | | |
|--------------------------|--------|--------|-------|
| ANNUAL TOTAL | 8002.7 | 7329.6 | |
| ANNUAL MEAN | 21.9 | 20.1 | 19.7 |
| HIGHEST ANNUAL MEAN | | | 28.2 |
| LOWEST ANNUAL MEAN | | | 11.9 |
| HIGHEST DAILY MEAN | 454 | Dec 29 | 887 |
| LOWEST DAILY MEAN | 2.2 | Apr 28 | 1.9 |
| ANNUAL SEVEN-DAY MINIMUM | 2.9 | Apr 22 | 2.2 |
| INSTANTANEOUS PEAK FLOW | | | 4840 |
| INSTANTANEOUS PEAK STAGE | | | 16.11 |
| INSTANTANEOUS LOW FLOW | | | 9600 |
| ANNUAL RUNOFF (AC-FT) | 15870 | 14540 | 14270 |
| ANNUAL RUNOFF (CFSM) | 5.52 | 5.07 | 4.97 |
| ANNUAL RUNOFF (INCHES) | 75.18 | 68.85 | 67.59 |
| 10 PERCENT EXCEEDS | 36 | 34 | 36 |
| 50 PERCENT EXCEEDS | 11 | 11 | 8.7 |
| 90 PERCENT EXCEEDS | 6.2 | 3.6 | 2.9 |

e Estimated

RIO FAJARDO BASIN

50071000 RIO FAJARDO NEAR FAJARDO, PR

LOCATION.--Lat 18°17'56", long 65°41'42", Hydrologic Unit 21010005, on left bank off Highway 976, 0.1 mi (0.2 km) upstream from Highway 977 bridge, 0.3 mi (0.5 km) downstream from Quebrada Peñón, 1.1 mi (1.8 km) northeast of Colonia Paraíso, and 3.3 mi (5.3 km) southwest of Fajardo.

DRAINAGE AREA.--14.9 mi² (38.6 km²).

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--1960-61 (occasional low and peak-flow measurements only), March 1961 to current year.

GAGE.--Water-stage recorder and crest-stage gage. Datum of gage is 137.60 ft (41.940 m) above mean sea level. Due to flood damage, gage datum has had changes as follows: Mar. 24, 1961 to May 5, 1969, 138.95 ft (42.352 m); May 6, 1969 to Mar. 16, 1972, 135.05 ft (41.163 m); Mar. 17, 1972 to Mar 25, 1975, 138.60 ft (42.245 m).

REMARKS.--Records fair except those for estimated daily discharges, which are poor. Low flow affected by diversions for water supply about 400 m upstream from gaging station (estimated mean daily discharges is 9.0 ft³/s (0.255 m³/s). Gage-height and precipitation satellite telemetry at station.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993
DAILY MEAN VALUES

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|-------|-------|------|-------|------|-------|-------|--------|--------|------|------|------|------|
| 1 | 35 | 25 | 67 | 106 | 15 | 8.7 | 16 | 159 | 31 | 19 | 27 | 40 |
| 2 | 21 | 59 | 54 | 87 | 14 | 12 | 15 | 128 | 14 | 18 | 27 | 23 |
| 3 | 16 | 90 | 53 | 72 | 16 | 10 | 20 | 57 | 12 | 84 | 26 | 44 |
| 4 | e15 | 245 | 65 | 65 | 16 | 8.1 | 16 | 19 | 12 | 25 | 25 | 39 |
| 5 | e30 | 61 | 51 | 133 | 14 | 7.9 | 14 | 26 | 11 | 18 | 24 | 131 |
| 6 | e120 | 71 | 283 | 90 | 12 | 7.9 | 13 | 20 | 11 | 24 | 23 | 38 |
| 7 | e21 | 57 | 73 | 59 | 12 | 7.6 | 12 | 12 | 10 | 65 | 22 | 212 |
| 8 | e19 | 28 | 57 | 46 | 11 | 7.5 | 14 | 166 | 10 | 60 | 21 | 183 |
| 9 | e24 | 42 | 51 | 45 | 11 | 7.2 | 14 | 478 | 11 | 22 | 24 | 52 |
| 10 | e17 | 91 | 47 | 35 | 10 | 6.9 | 14 | 44 | 19 | 17 | 21 | 46 |
| 11 | e14 | 24 | 45 | 34 | 9.6 | 7.2 | 12 | 27 | 13 | 641 | 22 | 31 |
| 12 | e14 | 23 | 42 | 34 | 30 | 7.9 | 13 | 10 | 11 | 103 | 20 | 29 |
| 13 | e13 | 22 | 41 | 32 | 14 | 8.3 | 12 | 9.7 | 27 | 37 | 19 | 31 |
| 14 | e13 | 73 | 56 | 40 | 11 | 7.9 | 12 | 56 | 16 | 24 | 19 | 22 |
| 15 | e13 | 77 | 51 | 29 | 9.5 | 7.9 | 11 | 13 | 24 | 132 | 25 | 102 |
| 16 | e24 | 143 | 40 | 29 | 9.5 | 61 | 14 | 10 | 24 | 113 | 48 | e743 |
| 17 | e29 | 70 | 38 | 26 | 10 | 35 | 16 | 9.9 | 13 | 28 | 26 | 71 |
| 18 | e17 | 268 | 36 | 24 | 14 | 23 | 215 | 43 | 15 | 21 | 23 | 61 |
| 19 | e11 | 101 | 36 | 24 | 10 | 35 | 28 | 9.5 | 401 | 18 | 40 | 20 |
| 20 | e18 | 90 | 39 | 22 | 90 | 26 | 32 | 9.0 | 157 | 15 | 20 | 14 |
| 21 | e11 | 63 | 35 | 21 | 70 | e19 | 21 | 8.9 | 38 | 13 | 19 | 13 |
| 22 | e12 | 242 | 86 | 142 | 14 | e17 | 12 | 8.5 | 80 | 125 | 17 | 12 |
| 23 | e8.9 | 80 | 46 | 51 | 13 | e58 | 11 | 11 | 29 | 445 | 38 | 16 |
| 24 | e9.0 | 65 | 85 | 26 | 11 | e72 | 9.6 | 25 | 25 | 103 | 30 | 13 |
| 25 | e8.0 | 39 | 78 | 36 | 9.5 | 25 | 8.9 | 61 | 21 | 57 | 19 | 39 |
| 26 | e7.4 | 32 | 406 | 24 | 9.2 | 35 | 9.0 | 30 | 19 | 59 | 17 | 12 |
| 27 | 6.6 | 185 | 107 | 34 | 10 | 21 | 11 | 312 | 17 | 47 | 15 | 32 |
| 28 | 6.4 | 235 | 122 | 199 | 8.7 | 21 | 11 | 57 | 16 | 37 | 18 | 18 |
| 29 | 7.6 | 186 | 1370 | 120 | --- | 19 | 9.2 | 23 | 28 | 32 | 15 | 35 |
| 30 | 18 | 180 | 391 | 23 | --- | 31 | 651 | 19 | 55 | 31 | 64 | 47 |
| 31 | 68 | --- | 146 | 18 | --- | 19 | --- | 27 | --- | 29 | 36 | --- |
| TOTAL | 646.9 | 2967 | 4097 | 1726 | 484.0 | 640.0 | 1266.7 | 1888.5 | 1170 | 2462 | 790 | 2169 |
| MEAN | 20.9 | 98.9 | 132 | 55.7 | 17.3 | 20.6 | 42.2 | 60.9 | 39.0 | 79.4 | 25.5 | 72.3 |
| MAX | 120 | 268 | 1370 | 199 | 90 | 72 | 651 | 478 | 401 | 641 | 64 | 743 |
| MIN | 6.4 | 22 | 35 | 18 | 8.7 | 6.9 | 8.9 | 8.5 | 10 | 13 | 15 | 12 |
| AC-FT | 1280 | 5890 | 8130 | 3420 | 960 | 1270 | 2510 | 3750 | 2320 | 4880 | 1570 | 4300 |
| CFSM | 1.40 | 6.64 | 8.87 | 3.74 | 1.16 | 1.39 | 2.83 | 4.09 | 2.62 | 5.33 | 1.71 | 4.85 |
| IN. | 1.62 | 7.41 | 10.23 | 4.31 | 1.21 | 1.60 | 3.16 | 4.71 | 2.92 | 6.15 | 1.97 | 5.42 |

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1961 - 1993, BY WATER YEAR (WY)

| | MEAN | 96.9 | 106 | 81.3 | 45.3 | 37.1 | 35.7 | 46.1 | 96.0 | 61.2 | 51.4 | 57.9 | 86.9 |
|------|------|------|------|------|------|------|------|------|------|------|------|------|------|
| MAX | 260 | 295 | 237 | 101 | 80.4 | 109 | 129 | 399 | 166 | 132 | 159 | 421 | |
| (WY) | 1971 | 1975 | 1976 | 1969 | 1982 | 1987 | 1963 | 1979 | 1962 | 1969 | 1979 | 1989 | |
| MIN | 19.1 | 30.8 | 14.9 | 15.4 | 10.8 | 9.70 | 4.02 | 17.7 | 10.0 | 12.5 | 25.5 | 19.1 | |
| (WY) | 1969 | 1981 | 1990 | 1977 | 1983 | 1977 | 1984 | 1973 | 1985 | 1992 | 1993 | 1991 | |

| SUMMARY STATISTICS | FOR 1992 CALENDAR YEAR | | FOR 1993 WATER YEAR | | WATER YEARS 1961 - 1993 | |
|--------------------------|------------------------|--|---------------------|--|-------------------------|--|
| ANNUAL TOTAL | 20160.3 | | 20307.1 | | 67.3 | |
| ANNUAL MEAN | 55.1 | | 55.6 | | 140 | |
| HIGHEST ANNUAL MEAN | | | | | 38.2 | |
| LOWEST ANNUAL MEAN | | | | | 1979 | |
| HIGHEST DAILY MEAN | 1370 | | 1370 | | 8800 | |
| LOWEST DAILY MEAN | 4.0 | | 6.4 | | 1.0 | |
| ANNUAL SEVEN-DAY MINIMUM | 4.8 | | 7.5 | | 1.5 | |
| ANNUAL RUNOFF (AC-FT) | 39990 | | 40280 | | 48770 | |
| ANNUAL RUNOFF (CFSM) | 3.70 | | 3.73 | | 4.52 | |
| ANNUAL RUNOFF (INCHES) | 50.33 | | 50.70 | | 61.39 | |
| 10 PERCENT EXCEEDS | 118 | | 116 | | 128 | |
| 50 PERCENT EXCEEDS | 22 | | 24 | | 34 | |
| 90 PERCENT EXCEEDS | 7.4 | | 10 | | 12 | |

e Estimated

RIO FAJARDO BASIN

50071000 RIO FAJARDO NEAR FAJARDO, PR--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Water years 1960 to current year.

WATER-QUALITY DATA, WATER YEAR OCTOBER 1991 TO SEPTEMBER 1992

| DATE | TIME | DIS-CHARGE, INST. CUBIC FEET PER SECOND | SPE-CIFIC CON-DUCT-ANCE (US/CM) | PH WATER WHOLE FIELD (STAND-ARD UNITS) | TEMPER-ATURE WATER (DEG C) | TUR-BID-ITY (NTU) | OXYGEN, DIS-SOLVED (MG/L) | OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION) | OXYGEN DEMAND, CHEM-ICAL (HIGH LEVEL) (MG/L) | COLI-FORM, FECAL, 0.45 UM-MF (COLS./ 100 ML) | STREP-TOCOCCI FECAL, (COLS. PER 100 ML) |
|-----------|------|---|---------------------------------|--|----------------------------|-------------------|---------------------------|---|--|--|---|
| OCT 1992 | | | | | | | | | | | |
| 15... | 1240 | 13 | 120 | 7.9 | 30.5 | 1.3 | 8.5 | 110 | <10 | K130 | K100 |
| DEC 03... | 1100 | 50 | 108 | 7.6 | 25.9 | 4.3 | 8.4 | 105 | <10 | 220 | 480 |
| FEB 1993 | | | | | | | | | | | |
| 26... | 1215 | 20 | 150 | 7.8 | 24.5 | 0.90 | 8.0 | 101 | 13 | 30 | K110 |
| APR 29... | 1225 | 8.8 | 155 | 7.2 | 29.5 | 0.60 | 7.1 | 93 | 13 | 280 | K150 |
| JUN 18... | 1230 | 16 | 153 | 7.0 | 30.0 | 0.40 | 7.5 | 99 | <10 | 480 | 330 |
| AUG 13... | 1230 | 20 | 116 | 6.6 | 30.5 | 0.70 | 6.9 | 90 | 19 | K150 | 230 |

| DATE | HARD-NESS TOTAL (MG/L AS CaCO3) | HARD-NESS NONCARB WH WAT TOT FLD (MG/L AS CaCO3) | CALCIUM DIS-SOLVED (MG/L AS Ca) | MAGNE-SIUM, DIS-SOLVED (MG/L AS Mg) | SODIUM, DIS-SOLVED (MG/L AS Na) | SODIUM AD-SORP-TION RATIO | POTAS-SIUM, DIS-SOLVED (MG/L AS K) | ALKA-LINITY WAT WH TOT FET FIELD (MG/L AS CaCO3) | SULFIDE TOTAL (MG/L AS S) | SULFATE DIS-SOLVED (MG/L AS SO4) | CHLO-RIDE, DIS-SOLVED (MG/L AS Cl) |
|-----------|---------------------------------|--|---------------------------------|-------------------------------------|---------------------------------|---------------------------|------------------------------------|--|---------------------------|----------------------------------|------------------------------------|
| OCT 1992 | | | | | | | | | | | |
| 15... | 20 | 1 | 4.4 | 2.3 | 7.4 | 0.7 | 1.2 | 39 | <0.5 | 7.1 | 9.0 |
| DEC 03... | -- | -- | -- | -- | -- | -- | -- | 36 | -- | -- | -- |
| FEB 1993 | | | | | | | | | | | |
| 26... | -- | -- | -- | -- | -- | -- | -- | 100 | -- | -- | -- |
| APR 29... | 33 | 0 | 7.3 | 3.6 | 11 | 0.8 | 1.1 | 34 | 0.6 | 4.6 | 14 |
| JUN 18... | -- | -- | -- | -- | -- | -- | -- | 40 | -- | -- | -- |
| AUG 13... | 32 | 2 | 6.9 | 3.5 | 13 | 1 | 1.3 | 52 | -- | 3.6 | 14 |

| DATE | FLUO-RIDE, DIS-SOLVED (MG/L AS F) | SILICA, DIS-SOLVED (MG/L AS SiO2) | SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L) | SOLIDS, DIS-SOLVED (TONS PER DAY) | RESIDUE TOTAL AT 105 DEG. C, SUS-PENDED (MG/L) | NITRO-GEN, NITRATE TOTAL (MG/L AS N) | NITRO-GEN, NITRITE TOTAL (MG/L AS N) | NITRO-GEN, NO2+NO3 TOTAL (MG/L AS N) | NITRO-GEN, AMMONIA TOTAL (MG/L AS N) | NITRO-GEN, ORGANIC TOTAL (MG/L AS N) |
|-----------|-----------------------------------|-----------------------------------|---|-----------------------------------|--|--------------------------------------|--------------------------------------|--------------------------------------|--------------------------------------|--------------------------------------|
| OCT 1992 | | | | | | | | | | |
| 15... | <0.10 | 16 | 60 | 3.24 | <1 | 0.120 | 0.080 | 0.200 | 0.030 | 0.10 |
| DEC 03... | -- | -- | -- | -- | <1 | 0.890 | 0.210 | 1.10 | 0.400 | 0.20 |
| FEB 1993 | | | | | | | | | | |
| 26... | -- | -- | -- | -- | <1 | 0.370 | 0.030 | 0.400 | 0.480 | 0.20 |
| APR 29... | <0.10 | 26 | 88 | 2.09 | <1 | 0.230 | 0.070 | 0.300 | 0.290 | 0.01 |
| JUN 18... | -- | -- | -- | -- | 5 | 0.380 | 0.020 | 0.400 | 0.450 | 0.05 |
| AUG 13... | 0.20 | 27 | 101 | 5.44 | 2 | 0.190 | 0.010 | 0.200 | 0.570 | 0.03 |

K = non-ideal count

RIO FAJARDO BASIN

50071000 RIO FAJARDO NEAR FAJARDO, PR--Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993

| DATE | NITRO- GEN, AM- MONIA + ORGANIC TOTAL (MG/L AS N) | NITRO- GEN, TOTAL (MG/L AS N) | NITRO- GEN, TOTAL (MG/L AS NO3) | PHOS- PHORUS TOTAL (MG/L AS P) | ARSENIC TOTAL (UG/L AS AS) | BARIUM, TOTAL RECOV- ERABLE (UG/L AS BA) | BORON, TOTAL RECOV- ERABLE (UG/L AS B) | CADMIUM TOTAL RECOV- ERABLE (UG/L AS CD) | CHRO- MIUM, TOTAL RECOV- ERABLE (UG/L AS CR) | COPPER, TOTAL RECOV- ERABLE (UG/L AS CU) |
|-----------|---|---|---|--|-------------------------------------|---|---|---|--|---|
| OCT 1992 | | | | | | | | | | |
| 15... | 0.40 | 0.60 | 1.8 | 0.030 | <1 | <100 | 30 | 2 | 9 | <10 |
| DEC 03... | 0.60 | 1.1 | 4.9 | 0.040 | -- | -- | -- | -- | -- | -- |
| FEB 1993 | | | | | | | | | | |
| 26... | 0.50 | 0.20 | 2.3 | <0.010 | -- | -- | -- | -- | -- | -- |
| APR 29... | 0.30 | 0.10 | 1.9 | <0.010 | <1 | <100 | 30 | <1 | <1 | <10 |
| JUN 18... | 0.60 | 0.40 | 2.7 | 0.040 | -- | -- | -- | -- | -- | -- |
| AUG 13... | 0.50 | 0.90 | 4.0 | 0.030 | -- | -- | -- | -- | -- | -- |

| DATE | IRON, TOTAL RECOV- ERABLE (UG/L AS FE) | LEAD, TOTAL RECOV- ERABLE (UG/L AS PB) | MANGA- NESE, TOTAL RECOV- ERABLE (UG/L AS MN) | MERCURY TOTAL RECOV- ERABLE (UG/L AS HG) | SELE- NIUM, TOTAL (UG/L AS SE) | SILVER, TOTAL RECOV- ERABLE (UG/L AS AG) | ZINC, TOTAL RECOV- ERABLE (UG/L AS ZN) | CYANIDE TOTAL (MG/L AS CN) | PHENOLS TOTAL (UG/L) | METHY- LENE BLUE ACTIVE SUB- STANCE (MG/L) |
|-----------|---|---|---|---|--|---|---|-------------------------------------|----------------------------|--|
| OCT 1992 | | | | | | | | | | |
| 15... | 2100 | 5 | 50 | <0.10 | <1 | <1 | 60 | <0.010 | 3 | 0.04 |
| DEC 03... | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| FEB 1993 | | | | | | | | | | |
| 26... | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| APR 29... | 70 | <1 | <10 | <0.10 | <1 | <1 | <10 | <0.010 | 1 | 0.02 |
| JUN 18... | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| AUG 13... | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |

PESTICIDE ANALYSES

| DATE | TIME | PCB, TOTAL (UG/L) | ALDRIN, TOTAL (UG/L) | CHLOR- DANE, TOTAL (UG/L) | DDD, TOTAL (UG/L) | DDE, TOTAL (UG/L) | DDT, TOTAL (UG/L) | DI- AZINON, TOTAL (UG/L) | DI- ELDRIN TOTAL (UG/L) | ENDO- SULFAN, TOTAL (UG/L) |
|----------|------|-------------------------|----------------------------|------------------------------------|-------------------------|-------------------------|-------------------------|-----------------------------------|----------------------------------|-------------------------------------|
| JUN 1993 | | | | | | | | | | |
| 09... | 1030 | <0.1 | <0.010 | <0.1 | <0.010 | <0.010 | <0.010 | <0.01 | <0.010 | <0.010 |

| DATE | ENDRIN WATER UNFLTRD REC (UG/L) | ETHION, TOTAL (UG/L) | HEPTA- CHLOR, TOTAL (UG/L) | HEPTA- CHLOR EPOXIDE TOTAL (UG/L) | LINDANE TOTAL (UG/L) | MALA- THION, TOTAL (UG/L) | METH- OXY- CHLOR, TOTAL (UG/L) | METHYL PARA- THION, TOTAL (UG/L) | MIREX, TOTAL (UG/L) |
|----------|---|----------------------------|-------------------------------------|---|----------------------------|------------------------------------|--|--|---------------------------|
| JUN 1993 | | | | | | | | | |
| 09... | <0.010 | <0.01 | <0.010 | <0.010 | <0.010 | <0.01 | <0.01 | <0.01 | <0.01 |

| DATE | PARA- THION, TOTAL (UG/L) | NAPH- THA- LENES, POLY- CHLOR. TOTAL (UG/L) | PER- THANE TOTAL (UG/L) | TOX- APHENE, TOTAL (UG/L) | TOTAL TRI- THION (UG/L) | 2,4-D, TOTAL (UG/L) | 2,4,5-T TOTAL (UG/L) | 2, 4-DP TOTAL (UG/L) | SILVEX, TOTAL (UG/L) |
|----------|------------------------------------|---|----------------------------------|------------------------------------|----------------------------------|---------------------------|----------------------------|----------------------------|----------------------------|
| JUN 1993 | | | | | | | | | |
| 09... | <0.01 | <0.10 | <0.1 | <1 | <0.01 | <0.01 | <0.01 | <0.01 | <0.01 |

RIO FAJARDO BASIN

50072500 RIO FAJARDO BELOW FAJARDO, PR

WATER-QUALITY RECORDS

LOCATION.--Lat 18°19'35", long 65°38'47", 1.2 mi (1.9 km) southwest of Playa de Fajardo, and 0.5 mi (0.8 km) east of Fajardo plaza.

DRAINAGE AREA.--23.4 mi² (60.6 km²).

PERIOD OF RECORD.--Water years 1974 to current year.

WATER-QUALITY DATA, WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993

| DATE | TIME | DIS-CHARGE, INST. CUBIC FEET PER SECOND | SPECIFIC CONDUCTANCE (US/CM) | PH WATER WHOLE FIELD (STANDARD UNITS) | TEMPERATURE WATER (DEG C) | TURBIDITY (NTU) | OXYGEN, DIS-SOLVED (MG/L) | OXYGEN, DIS-SOLVED (PER-CENT SATURATION) | OXYGEN DEMAND, CHEMICAL (HIGH LEVEL) (MG/L) | COLIFORM, FECAL, 0.45 UM-MF (COLS./100 ML) | STREPTOCOCCI, FECAL, (COLS. PER 100 ML) |
|-----------|------|---|------------------------------|---------------------------------------|---------------------------|-----------------|---------------------------|--|---|--|---|
| OCT 1992 | | | | | | | | | | | |
| 15... | 0855 | 23 | 144 | 7.0 | 28.5 | 2.6 | 6.5 | 82 | <10 | 250 | K2100 |
| DEC 03... | 1245 | 26 | 140 | 7.4 | 26.0 | 2.9 | 8.2 | 92 | 49 | 460 | 780 |
| FEB 1993 | | | | | | | | | | | |
| 26... | 1345 | 32 | 150 | 7.2 | 25.5 | 6.7 | 8.2 | 93 | 49 | 460 | 780 |
| APR 29... | 1345 | 56 | 193 | 6.8 | 29.0 | 12 | 8.5 | 110 | 12 | 370 | 220 |
| JUN 18... | 1335 | 12 | 178 | 7.2 | 30.5 | 0.70 | 6.3 | 82 | 13 | 480 | 530 |
| AUG 13... | 1420 | 16 | 148 | 6.8 | 30.5 | 0.70 | 5.0 | 65 | 23 | 380 | 290 |

| DATE | HARDNESS TOTAL (MG/L AS CACO3) | HARDNESS NONCARB WH WAT TOT FLD (MG/L AS CACO3) | CALCIUM DIS-SOLVED (MG/L AS CA) | MAGNESIUM, DIS-SOLVED (MG/L AS MG) | SODIUM, DIS-SOLVED (MG/L AS NA) | SODIUM ADSORPTION RATIO | POTASSIUM, DIS-SOLVED (MG/L AS K) | ALKALINITY WAT WH TOT FET FIELD (MG/L AS CACO3) | SULFIDE TOTAL (MG/L AS S) | SULFATE DIS-SOLVED (MG/L AS SO4) | CHLORIDE, DIS-SOLVED (MG/L AS CL) |
|-----------|--------------------------------|---|---------------------------------|------------------------------------|---------------------------------|-------------------------|-----------------------------------|---|---------------------------|----------------------------------|-----------------------------------|
| OCT 1992 | | | | | | | | | | | |
| 15... | 38 | 3 | 8.5 | 4.0 | 10 | 0.7 | 1.8 | 44 | <0.5 | 8.2 | 16 |
| DEC 03... | -- | -- | -- | -- | -- | -- | -- | 43 | -- | -- | -- |
| FEB 1993 | | | | | | | | | | | |
| 26... | -- | -- | -- | -- | -- | -- | -- | 43 | -- | -- | -- |
| APR 29... | 40 | -- | 8.9 | 4.3 | 14 | 1 | 1.3 | 41 | 0.6 | 6.6 | 16 |
| JUN 18... | -- | -- | -- | -- | -- | -- | -- | 44 | -- | -- | -- |
| AUG 13... | 36 | -- | 7.7 | 4.0 | 14 | 1 | 1.3 | 67 | -- | 4.8 | 16 |

| DATE | FLUORIDE, DIS-SOLVED (MG/L AS F) | SILICA, DIS-SOLVED (MG/L AS SIO2) | SOLIDS, SUM OF CONSTITUENTS, DIS-SOLVED (MG/L) | SOLIDS, DIS-SOLVED (TONS PER DAY) | RESIDUE TOTAL AT 105 DEG. C, SUSPENDED (MG/L) | NITROGEN, NITRATE TOTAL (MG/L AS N) | NITROGEN, NITRITE TOTAL (MG/L AS N) | NITROGEN, NO2+NO3 TOTAL (MG/L AS N) | NITROGEN, AMMONIA TOTAL (MG/L AS N) | NITROGEN, ORGANIC TOTAL (MG/L AS N) |
|-----------|----------------------------------|-----------------------------------|--|-----------------------------------|---|-------------------------------------|-------------------------------------|-------------------------------------|-------------------------------------|-------------------------------------|
| OCT 1992 | | | | | | | | | | |
| 15... | 0.10 | 21 | 91 | 5.7 | <1 | -- | <0.010 | <0.050 | 0.150 | 0.15 |
| DEC 03... | -- | -- | -- | -- | 6 | 0.280 | 0.020 | 0.300 | 0.120 | 0.38 |
| FEB 1993 | | | | | | | | | | |
| 26... | -- | -- | -- | -- | 10 | 0.360 | 0.040 | 0.400 | 0.130 | 0.57 |
| APR 29... | 0.10 | 23 | 99 | 15.0 | 14 | 0.980 | 0.020 | 1.00 | 0.140 | 0.06 |
| JUN 18... | -- | -- | -- | -- | 4 | 0.440 | 0.060 | 0.500 | 0.130 | 0.77 |
| AUG 13... | 0.10 | 25 | 113 | 4.9 | 2 | 0.190 | 0.010 | 0.200 | 0.150 | 0.35 |

K = non-ideal count

RIO FAJARDO BASIN

50072500 RIO FAJARDO BELOW FAJARDO, PR--Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993

| DATE | NITRO- GEN, AM- MONIA + ORGANIC TOTAL (MG/L AS N) | NITRO- GEN, TOTAL (MG/L AS N) | NITRO- GEN, TOTAL (MG/L AS NO3) | PHOS- PHORUS TOTAL (MG/L AS P) | ARSENIC TOTAL (UG/L AS AS) | BARIUM, TOTAL RECOV- ERABLE (UG/L AS BA) | BORON, TOTAL RECOV- ERABLE (UG/L AS B) | CADMIUM TOTAL RECOV- ERABLE (UG/L AS CD) | CHRO- MIUM, TOTAL RECOV- ERABLE (UG/L AS CR) | COPPER, TOTAL RECOV- ERABLE (UG/L AS CU) |
|-----------|---|---|---|--|-------------------------------------|---|---|---|--|---|
| OCT 15... | 0.30 | 1.1 | 4.9 | 0.060 | <1 | <100 | 50 | <1 | 11 | 30 |
| DEC 03... | 0.50 | 0.90 | 2.5 | 0.500 | -- | -- | -- | -- | -- | -- |
| FEB 26... | 0.70 | 0.40 | 1.8 | 0.010 | -- | -- | -- | -- | -- | -- |
| APR 29... | 0.20 | 0.40 | 6.2 | 0.010 | <1 | <100 | 30 | <1 | <1 | <10 |
| JUN 18... | 0.90 | 1.4 | 3.1 | 0.010 | -- | -- | -- | -- | -- | -- |
| AUG 13... | 0.50 | 0.70 | 4.6 | 0.030 | -- | -- | -- | -- | -- | -- |

[illegible]

RIO BLANCO BASIN

323

50074950 QUEBRADA GUABA NEAR NAGUABO, PR

LOCATION.--Lat 18°17'02", long 65°47'20", Hydrologic Unit 21010005, on right bank, off Highway 191 at El Yunque Caribbean National Forest, 4.8 mi (7.7 km) southeast of Campamento Eliza Colberg, 1.3 mi (2.1 km) southeast of Mt. Britton, 2.0 mi (3.2 km) northwest of Pico del Este and 7.3 mi (11.7 km) southeast of Río Grande Plaza.

DRAINAGE AREA.--0.05 mi² (0.13 km²).

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--June 1992 to current year.

GAGE.--Water-stage recorder. Elevation of gage is 2,100 ft (640 m), from topographic map.

REMARKS.--Records fair except those for estimated daily discharges, which are poor. Gage-height and precipitation satellite telemetry at station.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1991 TO SEPTEMBER 1992
DAILY MEAN VALUES

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|-------|-----|-----|-----|-----|-----|-----|-----|-----|-------|-------|-------|-------|
| 1 | | | | | | | | | | .60 | .64 | .31 |
| 2 | | | | | | | | | | .59 | .76 | .29 |
| 3 | | | | | | | | | | .60 | .67 | .35 |
| 4 | | | | | | | | | | .63 | .97 | .40 |
| 5 | | | | | | | | | | .66 | 3.4 | .38 |
| 6 | | | | | | | | | | .68 | 1.8 | .37 |
| 7 | | | | | | | | | | .66 | .59 | .35 |
| 8 | | | | | | | | | | 1.4 | .43 | .28 |
| 9 | | | | | | | | | | 1.1 | .30 | .50 |
| 10 | | | | | | | | | | .95 | .30 | .28 |
| 11 | | | | | | | | | | .76 | .88 | .29 |
| 12 | | | | | | | | | | .80 | .31 | .24 |
| 13 | | | | | | | | | | .82 | .57 | .19 |
| 14 | | | | | | | | | | .83 | .72 | .23 |
| 15 | | | | | | | | | | .84 | .37 | .35 |
| 16 | | | | | | | | | | 6.1 | .34 | .63 |
| 17 | | | | | | | | | | 2.7 | .38 | .51 |
| 18 | | | | | | | | | | 1.7 | .31 | .43 |
| 19 | | | | | | | | | | 1.4 | .33 | .47 |
| 20 | | | | | | | | | | 1.2 | .30 | 1.7 |
| 21 | | | | | | | | | | 1.1 | .22 | .68 |
| 22 | | | | | | | | | | .96 | .18 | .36 |
| 23 | | | | | | | | | e .61 | .86 | .20 | .50 |
| 24 | | | | | | | | | .60 | 1.4 | .25 | .39 |
| 25 | | | | | | | | | .59 | 1.3 | .16 | .26 |
| 26 | | | | | | | | | .57 | 1.0 | .26 | .20 |
| 27 | | | | | | | | | .62 | 1.3 | .28 | .16 |
| 28 | | | | | | | | | .61 | 1.1 | .22 | .15 |
| 29 | | | | | | | | | .59 | .90 | .23 | .14 |
| 30 | | | | | | | | | .64 | .85 | .33 | .15 |
| 31 | | | | | | | | | --- | .79 | .67 | --- |
| TOTAL | | | | | | | | | --- | 36.58 | 17.37 | 11.54 |
| MEAN | | | | | | | | | --- | 1.18 | .56 | .38 |
| MAX | | | | | | | | | --- | 6.1 | 3.4 | 1.7 |
| MIN | | | | | | | | | --- | .59 | .16 | .14 |
| AC-FT | | | | | | | | | --- | 73 | 34 | 23 |
| CFSM | | | | | | | | | --- | 9.83 | 4.67 | 3.21 |
| IN. | | | | | | | | | --- | 11.34 | 5.38 | 3.58 |

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1992 - 1992, BY WATER YEAR (WY)

| | | | | |
|------|-----|------|------|------|
| MEAN | --- | 1.18 | .56 | .38 |
| MAX | --- | 1.18 | .56 | .38 |
| (WY) | --- | 1992 | 1992 | 1992 |
| MIN | --- | 1.18 | .56 | .38 |
| (WY) | --- | 1992 | 1992 | 1992 |

e Estimated

RIO BLANCO BASIN

50074950 QUEBRADA GUABA NEAR NAGUABO, PR--Continued

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993
DAILY MEAN VALUES

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|-------|------|-------|-------|-------|------|------|------|-------|------|-------|------|-------|
| 1 | .20 | .40 | e.37 | e.60 | e.29 | e.22 | .22 | 3.9 | .28 | .23 | .23 | .26 |
| 2 | .18 | .94 | e.34 | e.54 | e.31 | e.28 | .22 | 2.3 | .27 | .33 | .23 | .22 |
| 3 | .17 | 1.1 | e.37 | e.54 | e.31 | e.26 | .49 | .60 | .29 | .63 | .22 | .14 |
| 4 | .16 | 2.7 | e.74 | e.40 | e.31 | e.25 | .24 | .34 | .25 | .25 | .22 | .13 |
| 5 | .15 | .62 | e.40 | e1.1 | e.28 | e.25 | .26 | .33 | .23 | .21 | .22 | .72 |
| 6 | .23 | .45 | e1.1 | e.80 | e.27 | e.25 | .24 | .31 | .21 | .29 | .19 | .20 |
| 7 | .20 | .29 | e.34 | e.78 | e.26 | e.24 | .23 | .27 | .23 | 1.2 | .18 | .40 |
| 8 | .17 | .41 | e.31 | e.44 | e.26 | e.27 | .24 | .74 | .25 | .55 | .19 | .99 |
| 9 | .21 | .38 | e.30 | e.41 | e.25 | e.25 | .24 | .94 | .26 | .32 | .20 | .27 |
| 10 | .19 | 1.2 | e.29 | e.41 | e.24 | e.24 | .23 | .43 | .32 | .34 | .18 | .33 |
| 11 | .18 | .30 | e.29 | e.41 | e.24 | .22 | .21 | .43 | .23 | 4.0 | .20 | .18 |
| 12 | .17 | .46 | e.29 | e.37 | e.40 | .23 | .24 | .35 | .23 | .57 | .18 | .18 |
| 13 | .18 | .36 | e.29 | e.44 | e.26 | .26 | .22 | .33 | .41 | .48 | .16 | .26 |
| 14 | .20 | .32 | e.31 | e.41 | e.23 | .21 | .22 | .61 | .24 | .41 | .17 | .16 |
| 15 | .21 | .26 | e.31 | e.34 | e.22 | .21 | .20 | .31 | .22 | .94 | .22 | 1.1 |
| 16 | .24 | 1.0 | e.28 | e.44 | e.21 | .73 | .19 | .28 | .19 | .50 | .31 | 1.1 |
| 17 | .27 | .35 | e.29 | e.34 | e.20 | .40 | .16 | .27 | .18 | .34 | .15 | .27 |
| 18 | .28 | 1.0 | e.30 | e.34 | e.20 | .19 | .17 | .26 | .27 | .31 | .20 | .19 |
| 19 | .26 | .29 | e.29 | e.34 | e.19 | .20 | .38 | .27 | 1.8 | .29 | .18 | .14 |
| 20 | .30 | .95 | e.30 | e.31 | e1.6 | .39 | .59 | .26 | .54 | .25 | .14 | .13 |
| 21 | .30 | .56 | e.34 | .30 | e.60 | .24 | .31 | .24 | .28 | .26 | .13 | .15 |
| 22 | .77 | 1.6 | e.27 | e1.8 | e.29 | .19 | .20 | .23 | .40 | .96 | .23 | .14 |
| 23 | .41 | .38 | .45 | e.42 | e.27 | .58 | .18 | .25 | .27 | 1.9 | .28 | .26 |
| 24 | .28 | .46 | .53 | e.36 | e.25 | .49 | .20 | .25 | .27 | .57 | .17 | .27 |
| 25 | .27 | .38 | 1.2 | e.68 | e.24 | .30 | .20 | .81 | .22 | .42 | .14 | .17 |
| 26 | .30 | .28 | 2.3 | e.31 | e.25 | .41 | .26 | .45 | .23 | .48 | .13 | .14 |
| 27 | .27 | 1.3 | .34 | e.54 | e.25 | .27 | .23 | 1.7 | .22 | .39 | .13 | .39 |
| 28 | .26 | .87 | e.49 | e1.3 | e.23 | .24 | .40 | .43 | .23 | .27 | .14 | .34 |
| 29 | .25 | 2.3 | e.74 | e.90 | --- | .22 | .34 | .37 | .32 | .25 | .12 | .23 |
| 30 | .25 | e.98 | e4.0 | e.36 | --- | .25 | 2.2 | .42 | .35 | .24 | .24 | .63 |
| 31 | .37 | --- | e.72 | e.30 | --- | .22 | --- | .32 | --- | .25 | .18 | --- |
| TOTAL | 7.88 | 22.89 | 18.89 | 17.03 | 8.91 | 8.96 | 9.71 | 19.00 | 9.69 | 18.43 | 5.86 | 10.09 |
| MEAN | .25 | .76 | .61 | .55 | .32 | .29 | .32 | .61 | .32 | .59 | .19 | .34 |
| MAX | .77 | 2.7 | 4.0 | 1.8 | 1.6 | .73 | 2.2 | 3.9 | 1.8 | 4.0 | .31 | 1.1 |
| MIN | .15 | .26 | .27 | .30 | .19 | .19 | .16 | .23 | .18 | .21 | .12 | .13 |
| AC-FT | 16 | 45 | 37 | 34 | 18 | 18 | 19 | 38 | 19 | 37 | 12 | 20 |
| CFSM | 2.12 | 6.36 | 5.08 | 4.58 | 2.65 | 2.41 | 2.70 | 5.11 | 2.69 | 4.95 | 1.58 | 2.80 |
| IN. | 2.44 | 7.10 | 5.86 | 5.28 | 2.76 | 2.78 | 3.01 | 5.89 | 3.00 | 5.71 | 1.82 | 3.13 |

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1992 - 1993, BY WATER YEAR (WY)

| | MEAN | .25 | .76 | .61 | .55 | .32 | .29 | .32 | .61 | .32 | .89 | .37 | .36 |
|------|------|------|------|------|------|------|------|------|------|------|------|------|------|
| MAX | .25 | .76 | .61 | .55 | .32 | .29 | .32 | .61 | .32 | 1.18 | .56 | .38 | |
| (WY) | 1993 | 1993 | 1993 | 1993 | 1993 | 1993 | 1993 | 1993 | 1993 | 1993 | 1992 | 1992 | 1992 |
| MIN | .25 | .76 | .61 | .55 | .32 | .29 | .32 | .61 | .32 | .59 | .19 | .34 | |
| (WY) | 1993 | 1993 | 1993 | 1993 | 1993 | 1993 | 1993 | 1993 | 1993 | 1993 | 1993 | 1993 | 1993 |

SUMMARY STATISTICS

FOR 1993 WATER YEAR

WATER YEARS 1992 - 1993

| | | | |
|--------------------------|--------|--------|------------------|
| ANNUAL TOTAL | 157.34 | | |
| ANNUAL MEAN | .43 | .43 | |
| HIGHEST ANNUAL MEAN | | .43 | 1993 |
| LOWEST ANNUAL MEAN | | .43 | 1993 |
| HIGHEST DAILY MEAN | 4.0 | Dec 30 | 6.1 Jul 16 1992 |
| LOWEST DAILY MEAN | .12 | Aug 29 | .12 Aug 29 1993 |
| ANNUAL SEVEN-DAY MINIMUM | .15 | Aug 24 | .15 Aug 24 1993 |
| INSTANTANEOUS PEAK FLOW | 64 | May 1 | 64 May 1 1993 |
| INSTANTANEOUS PEAK STAGE | 10.11 | May 1 | 10.11 May 1 1993 |
| ANNUAL RUNOFF (AC-FT) | 312 | | 312 |
| ANNUAL RUNOFF (CFSM) | 3.59 | | 3.59 |
| ANNUAL RUNOFF (INCHES) | 48.78 | | 48.81 |
| 10 PERCENT EXCEEDS | .80 | | .96 |
| 50 PERCENT EXCEEDS | .28 | | .30 |
| 90 PERCENT EXCEEDS | .18 | | .19 |

e Estimated

RIO BLANCO BASIN

50075000 RIO ICACOS NEAR NAGUABO, PR

LOCATION.--Lat 18°16'38", long 65°47'09", Hydrologic Unit 21010005, in Caribbean National Forest, off Highway 191, at El Yunque, 1.6 mi (2.6 km) upstream from confluence with Río Cubuy, 2.8 mi (4.5 km) north of Florida, and 5.3 mi (8.5 km) northwest of Naguabo Plaza.

DRAINAGE AREA.--1.26 mi² (3.26 km²).

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--July 1945 to March 1953 (operated by Puerto Rico Water Resources Authority), annual maximum, water years 1953-62, annual low-flow measurements 1962-66, October 1979 to current year.

GAGE.--Water-stage recorder, crest-stage gage and sharp-crested weir. Elevation of gage is 2,020 ft (616 m), from topographic map.

REMARKS.--Records fair except those for estimated daily discharges, which are poor.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993
DAILY MEAN VALUES

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| 1 | 6.7 | 4.7 | 12 | 20 | 11 | 7.4 | 5.8 | 58 | 7.4 | 3.3 | e7.0 | 6.9 |
| 2 | 5.5 | 9.9 | 11 | 17 | 12 | 7.8 | 5.6 | 54 | 7.3 | 5.3 | e6.0 | 5.4 |
| 3 | 5.0 | 23 | 12 | 18 | 12 | 7.1 | 12 | 23 | 7.3 | 14 | e6.0 | 4.7 |
| 4 | 5.4 | 79 | 24 | 14 | 11 | 6.9 | 6.5 | 8.1 | 6.3 | 3.6 | e5.6 | 4.9 |
| 5 | 5.2 | 9.1 | 13 | 34 | 11 | 6.9 | 6.2 | 7.8 | 6.0 | 3.1 | 5.6 | 19 |
| 6 | 8.5 | 14 | 34 | 27 | 11 | 6.9 | 6.1 | 6.8 | 5.7 | 4.5 | 5.0 | 14 |
| 7 | 5.3 | 7.7 | 11 | 26 | 10 | 7.2 | 6.0 | 6.0 | 6.5 | 26 | 5.0 | 18 |
| 8 | 5.0 | 7.6 | 9.9 | 15 | 10 | 7.7 | 6.3 | 15 | 6.2 | 10 | 5.0 | 27 |
| 9 | 5.6 | 8.1 | 9.5 | 14 | 10 | 6.9 | 6.9 | 31 | 6.6 | 3.3 | 4.8 | 7.1 |
| 10 | 4.7 | 35 | 9.3 | 13 | 9.8 | 6.9 | 6.3 | 10 | 9.6 | 3.5 | 4.7 | 11 |
| 11 | 4.5 | 5.8 | 9.4 | 14 | 9.8 | 6.9 | 6.0 | 11 | 6.5 | 60 | 5.1 | 5.6 |
| 12 | 4.4 | 12 | 9.4 | 13 | 15 | 6.9 | 6.0 | 8.8 | 5.7 | 8.2 | 4.6 | 5.2 |
| 13 | 4.3 | 6.6 | 9.5 | 15 | 10 | 7.2 | 6.1 | 8.9 | 13 | 5.0 | e4.8 | 6.4 |
| 14 | 4.2 | 9.5 | 10 | 14 | 9.7 | 6.7 | 6.0 | 24 | 6.7 | 4.5 | e4.4 | 4.8 |
| 15 | 4.5 | 9.2 | 10 | 12 | 9.4 | 7.6 | 5.6 | 9.5 | 6.3 | 25 | e4.7 | 32 |
| 16 | 4.1 | 30 | 9.1 | 15 | 9.3 | 26 | 5.6 | 8.0 | 5.5 | 9.1 | e8.0 | 57 |
| 17 | 4.1 | 14 | 9.4 | 12 | 9.5 | 13 | 5.6 | 8.1 | 4.6 | 4.4 | e11 | 12 |
| 18 | 3.8 | 44 | 9.6 | 11 | 9.6 | 9.8 | 5.9 | 7.5 | 6.9 | 4.3 | e5.0 | 8.6 |
| 19 | 3.6 | 12 | 9.3 | 12 | 9.3 | 9.8 | 7.8 | 7.1 | 45 | 4.5 | e7.4 | 6.9 |
| 20 | 3.9 | 23 | 9.5 | 11 | 55 | 11 | 16 | 7.6 | 14 | 4.8 | 5.1 | 6.8 |
| 21 | 3.2 | 22 | 9.4 | 11 | 30 | 8.6 | 6.2 | 6.4 | 5.5 | 5.3 | 4.8 | 6.7 |
| 22 | 14 | 68 | 25 | 58 | 12 | 7.9 | 4.8 | 6.1 | 10 | 28 | 8.7 | 5.4 |
| 23 | 4.2 | 12 | 10 | 15 | 10 | 21 | 5.4 | e6.8 | 4.4 | 46 | 8.8 | 7.8 |
| 24 | 3.4 | 17 | 21 | 13 | 8.2 | 18 | 5.6 | 7.0 | 4.5 | 15 | 4.6 | 6.0 |
| 25 | 3.4 | 16 | 23 | 24 | 7.9 | 9.4 | 5.7 | 29 | 3.5 | 7.2 | 4.7 | 4.4 |
| 26 | 3.3 | 9.8 | 81 | 12 | 8.1 | 13 | 7.1 | 13 | 3.8 | 9.8 | 4.7 | 3.9 |
| 27 | 3.2 | 36 | 21 | 15 | 8.3 | 8.2 | 7.7 | 52 | 3.7 | 8.0 | 5.2 | 13 |
| 28 | 3.1 | 30 | 24 | 46 | 7.7 | 8.0 | 11 | 11 | 3.2 | 5.4 | 5.7 | 9.4 |
| 29 | 3.1 | 60 | 104 | 33 | --- | 7.0 | 12 | 8.4 | 5.6 | 5.0 | 4.8 | 5.6 |
| 30 | 3.3 | 25 | 47 | 13 | --- | 6.8 | 68 | 11 | 6.6 | e4.7 | 9.9 | 15 |
| 31 | 5.8 | --- | 28 | 12 | --- | 6.2 | --- | 7.0 | --- | e4.5 | 6.5 | --- |
| TOTAL | 148.3 | 660.0 | 634.3 | 579 | 346.6 | 290.7 | 271.8 | 477.9 | 233.9 | 345.3 | 183.2 | 340.5 |
| MEAN | 4.78 | 22.0 | 20.5 | 18.7 | 12.4 | 9.38 | 9.06 | 15.4 | 7.80 | 11.1 | 5.91 | 11.3 |
| MAX | 14 | 79 | 104 | 58 | 55 | 26 | 68 | 58 | 45 | 60 | 11 | 57 |
| MIN | 3.1 | 4.7 | 9.1 | 11 | 7.7 | 6.2 | 4.8 | 6.0 | 3.2 | 3.1 | 4.4 | 3.9 |
| AC-FT | 294 | 1310 | 1260 | 1150 | 687 | 577 | 539 | 948 | 464 | 685 | 363 | 675 |
| CFSM | 3.80 | 17.5 | 16.2 | 14.8 | 9.82 | 7.44 | 7.19 | 12.2 | 6.19 | 8.84 | 4.69 | 9.01 |
| IN. | 4.38 | 19.49 | 18.73 | 17.09 | 10.23 | 8.58 | 8.02 | 14.11 | 6.91 | 10.19 | 5.41 | 10.05 |

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1945 - 1993, BY WATER YEAR (WY)

| | 1945 | 1946 | 1947 | 1948 | 1949 | 1950 | 1951 | 1952 | 1953 | 1954 | 1955 | 1956 |
|------|------|------|------|------|------|------|------|------|------|------|------|------|
| MEAN | 15.8 | 18.7 | 15.6 | 12.9 | 13.4 | 10.7 | 12.8 | 17.5 | 12.3 | 13.9 | 14.4 | 16.9 |
| MAX | 32.1 | 46.8 | 31.3 | 26.9 | 44.0 | 26.1 | 34.4 | 26.3 | 20.5 | 38.8 | 24.5 | 37.6 |
| (WY) | 1986 | 1951 | 1988 | 1952 | 1950 | 1949 | 1950 | 1948 | 1987 | 1952 | 1945 | 1989 |
| MIN | 4.78 | 8.00 | 4.99 | 7.72 | 4.86 | 3.90 | 4.77 | 10.7 | 5.19 | 7.35 | 5.91 | 7.03 |
| (WY) | 1993 | 1948 | 1990 | 1987 | 1983 | 1951 | 1984 | 1951 | 1985 | 1991 | 1993 | 1986 |

SUMMARY STATISTICS

FOR 1992 CALENDAR YEAR

FOR 1993 WATER YEAR

WATER YEARS 1945 - 1993

| | | | |
|--------------------------|--------|--------|--------|
| ANNUAL TOTAL | 4904.5 | 4511.5 | |
| ANNUAL MEAN | 13.4 | 12.4 | 14.6 |
| HIGHEST ANNUAL MEAN | | | 21.0 |
| LOWEST ANNUAL MEAN | | | 11.2 |
| HIGHEST DAILY MEAN | 161 | May 6 | 470 |
| LOWEST DAILY MEAN | 3.1 | Oct 28 | 1.5 |
| ANNUAL SEVEN-DAY MINIMUM | 3.3 | Oct 24 | 2.0 |
| INSTANTANEOUS PEAK FLOW | | | 2860 |
| INSTANTANEOUS PEAK STAGE | | | 8.96 |
| ANNUAL RUNOFF (AC-FT) | 9730 | 8950 | 10550 |
| ANNUAL RUNOFF (CFSM) | 10.6 | 9.81 | 11.6 |
| ANNUAL RUNOFF (INCHES) | 144.80 | 133.20 | 157.08 |
| 10 PERCENT EXCEEDS | 26 | 25 | 29 |
| 50 PERCENT EXCEEDS | 8.4 | 8.0 | 8.2 |
| 90 PERCENT EXCEEDS | 4.3 | 4.5 | 4.7 |

e Estimated

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INTENTIONALLY

RIO HUMACAO BASIN

50081000 RIO HUMACAO AT LAS PIEDRAS, PR

LOCATION.--Lat 18°10'27", long 65°52'11", Hydrologic unit 21010005, on left bank at downstream side of bridge on Highway 921, 0.6 mi (1.0 km) southeast of junction with Highway 30, 0.8 mi (1.3 km) downstream from Quebrada Blanca and 0.8 mi (1.3 km) south of Las Piedras.

DRAINAGE AREA.--6.65 mi² (17.22 km²).

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--September 1958 to December 1967 (monthly discharge measurements), July 1974 to September 1977, October 1987 to current year.

GAGE.--Water-stage recorder and crest-stage gage. Elevation of gage is 260 ft (79 m), from topographic map. Prior to July 1974, crest-stage gage at different datum. July 1974 to September 1977 at site 90 ft (27 m) upstream at present datum.

REMARKS.--Records fair except those above 1,000 ft³/s (28.3 m³/s) and estimated daily discharges, which are poor. Gage-height and precipitation satellite telemetry at station.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993
DAILY MEAN VALUES

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|-------|------|------|------|------|------|-------|-------|-------|-------|--------|------|------|
| 1 | 16 | 12 | 30 | 32 | 15 | 10 | 6.8 | 11 | 8.0 | 10 | 17 | 17 |
| 2 | 15 | 11 | 24 | 28 | 20 | 11 | 6.5 | 17 | 7.4 | 11 | 16 | 18 |
| 3 | 14 | 13 | 22 | 24 | 20 | 9.0 | 6.6 | 10 | 7.1 | 21 | 16 | 30 |
| 4 | 14 | 31 | 26 | 21 | 14 | 9.0 | 6.3 | 9.5 | 7.0 | 12 | 15 | 14 |
| 5 | 14 | 16 | 22 | 20 | 14 | 9.0 | 6.2 | 11 | 6.8 | 10 | 15 | 28 |
| 6 | 14 | 33 | 21 | 21 | 13 | 8.7 | 7.4 | 10 | 6.4 | 9.5 | 15 | 16 |
| 7 | 13 | 20 | 18 | 24 | 13 | 8.7 | 5.7 | 8.6 | 6.9 | 9.2 | 14 | 12 |
| 8 | 13 | 15 | 17 | 22 | 13 | 8.3 | 6.1 | 15 | 9.6 | 14 | 14 | 16 |
| 9 | 13 | 13 | 17 | 25 | 13 | 8.4 | 6.3 | 135 | 13 | 9.6 | 15 | 15 |
| 10 | 12 | 13 | 16 | 20 | 13 | 8.4 | 6.7 | 28 | 14 | 8.0 | 15 | 62 |
| 11 | 12 | 12 | 16 | 19 | 15 | e10 | 5.5 | 14 | 11 | 335 | 14 | 29 |
| 12 | 12 | 12 | 16 | 19 | 14 | e11 | 5.2 | 11 | 8.3 | 41 | 14 | 17 |
| 13 | 12 | 24 | 15 | 19 | 14 | e10 | 13 | 10 | 9.6 | 20 | 13 | 15 |
| 14 | 12 | 13 | 15 | 20 | 12 | e11 | 8.6 | 16 | 10 | 16 | 12 | 15 |
| 15 | 11 | 19 | 15 | 17 | 12 | e9.6 | 7.6 | 12 | 14 | 13 | 13 | 16 |
| 16 | 13 | 18 | 14 | 19 | 11 | e12 | 7.6 | 9.6 | 11 | 14 | 29 | 21 |
| 17 | 13 | 19 | 14 | 17 | 11 | e11 | 7.3 | 9.8 | 8.2 | 12 | 16 | 14 |
| 18 | 12 | 26 | 15 | 18 | 11 | e15 | 6.9 | 10 | 8.7 | 9.3 | 14 | 13 |
| 19 | 13 | 27 | 14 | 16 | 11 | e14 | 21 | 8.9 | 239 | 8.4 | 13 | 12 |
| 20 | 12 | 20 | 14 | 16 | 12 | e10 | 11 | 9.2 | 76 | 8.4 | 13 | 20 |
| 21 | 12 | 17 | 15 | 16 | 12 | e8.0 | 9.7 | 8.9 | 21 | 8.8 | 12 | 12 |
| 22 | 14 | 20 | 15 | 18 | 11 | e7.0 | 7.8 | 8.7 | 16 | e204 | 13 | 12 |
| 23 | 12 | 16 | 14 | 18 | 12 | e6.6 | 9.3 | 7.6 | 14 | 171 | 18 | 17 |
| 24 | 11 | 15 | 16 | 15 | 12 | 7.0 | 8.2 | 9.4 | 14 | 44 | 19 | 18 |
| 25 | 14 | 14 | 16 | 31 | 10 | 7.0 | 7.9 | 9.2 | 12 | 28 | 16 | 29 |
| 26 | 12 | 13 | 41 | 18 | 10 | 7.9 | 11 | 8.6 | 10 | e34 | 14 | 18 |
| 27 | 11 | 21 | 20 | 18 | 10 | 6.9 | 11 | 16 | 9.4 | e26 | 13 | 13 |
| 28 | 11 | 48 | 17 | 19 | 10 | 6.8 | 11 | 17 | 9.4 | 21 | 13 | 15 |
| 29 | 14 | 40 | 47 | 23 | --- | 7.3 | 20 | 9.4 | 9.4 | 19 | 12 | 16 |
| 30 | 13 | 224 | 42 | 18 | --- | 6.6 | 15 | 8.3 | 12 | 17 | 12 | 186 |
| 31 | 14 | --- | 32 | 16 | --- | 6.8 | --- | 7.7 | --- | 17 | 19 | --- |
| TOTAL | 398 | 795 | 636 | 627 | 358 | 282.0 | 269.2 | 476.4 | 609.2 | 1181.2 | 464 | 736 |
| MEAN | 12.8 | 26.5 | 20.5 | 20.2 | 12.8 | 9.10 | 8.97 | 15.4 | 20.3 | 38.1 | 15.0 | 24.5 |
| MAX | 16 | 224 | 47 | 32 | 20 | 15 | 21 | 135 | 239 | 335 | 29 | 186 |
| MIN | 11 | 11 | 14 | 15 | 10 | 6.6 | 5.2 | 7.6 | 6.4 | 8.0 | 12 | 12 |
| AC-FT | 789 | 1580 | 1260 | 1240 | 710 | 559 | 534 | 945 | 1210 | 2340 | 920 | 1460 |
| CFSM | 1.93 | 3.98 | 3.09 | 3.04 | 1.92 | 1.37 | 1.35 | 2.31 | 3.05 | 5.73 | 2.25 | 3.69 |
| IN. | 2.23 | 4.45 | 3.56 | 3.51 | 2.00 | 1.58 | 1.51 | 2.66 | 3.41 | 6.61 | 2.60 | 4.12 |

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1974 - 1993, BY WATER YEAR (WY)

| | MEAN | 32.8 | 42.6 | 34.6 | 19.9 | 14.8 | 11.4 | 9.24 | 15.3 | 15.9 | 19.8 | 19.3 | 30.7 |
|------|------|------|------|------|------|------|------|------|------|------|------|------|------|
| MAX | 74.9 | 126 | 112 | 34.1 | 20.5 | 16.4 | 13.1 | 42.2 | 29.0 | 38.1 | 32.7 | 54.1 | |
| (WY) | 1975 | 1988 | 1988 | 1992 | 1988 | 1989 | 1976 | 1992 | 1992 | 1993 | 1977 | 1975 | |
| MIN | 12.8 | 17.0 | 11.5 | 10.8 | 11.0 | 9.10 | 5.88 | 7.26 | 5.91 | 7.95 | 9.45 | 10.0 | |
| (WY) | 1993 | 1990 | 1992 | 1990 | 1977 | 1993 | 1977 | 1990 | 1977 | 1990 | 1974 | 1990 | |

SUMMARY STATISTICS

FOR 1992 CALENDAR YEAR

FOR 1993 WATER YEAR

WATER YEARS 1974 - 1993

| | | | |
|--------------------------|--------|--------|-------|
| ANNUAL TOTAL | 8341.5 | 6832.0 | |
| ANNUAL MEAN | 22.8 | 18.7 | 22.4 |
| HIGHEST ANNUAL MEAN | | | 37.6 |
| LOWEST ANNUAL MEAN | | | 12.1 |
| HIGHEST DAILY MEAN | 466 | May 26 | 1670 |
| LOWEST DAILY MEAN | 6.9 | May 22 | 2.2 |
| ANNUAL SEVEN-DAY MINIMUM | 7.3 | Apr 25 | 2.8 |
| INSTANTANEOUS PEAK FLOW | | | 20800 |
| INSTANTANEOUS PEAK STAGE | | | 34.40 |
| INSTANTANEOUS LOW FLOW | | | |
| ANNUAL RUNOFF (AC-FT) | 16550 | 13550 | 16200 |
| ANNUAL RUNOFF (CFSM) | 3.43 | 2.81 | 3.36 |
| ANNUAL RUNOFF (INCHES) | 46.66 | 38.22 | 45.68 |
| 10 PERCENT EXCEEDS | 31 | 24 | 33 |
| 50 PERCENT EXCEEDS | 15 | 14 | 14 |
| 90 PERCENT EXCEEDS | 8.5 | 8.0 | 6.8 |

e Estimated

RIO HUMACAO BASIN

50082000 RIO HUMACAO AT HIGHWAY 3 AT HUMACAO, PR

WATER-QUALITY RECORDS

LOCATION.--Lat 18 08'49", long 65 49'37", at bridge on Highway 3, 300 ft (91 m) downstream from Quebrada Mariana, and 0.4 mi (0.6 km) south of Humacao.

DRAINAGE AREA.--17.3 mi² (44.8 km²).

PERIOD OF RECORD.--Water years 1958-66, 1969 to current year.

WATER-QUALITY DATA, WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993

| DATE | TIME | DIS-CHARGE, INST. CUBIC FEET PER SECOND | SPECIFIC CONDUCTANCE (US/CM) | PH WATER WHOLE FIELD (STANDARD UNITS) | TEMPERATURE WATER (DEG C) | TURBIDITY (NTU) | OXYGEN, DIS-SOLVED (MG/L) | OXYGEN, DIS-SOLVED (PER-CENT SATURATION) | OXYGEN DEMAND, CHEMICAL (HIGH LEVEL) (MG/L) | COLIFORM, FECA, UM-MF (COLS./100 ML) | STREPTOCOCCI, FECA, (COLS. PER 100 ML) |
|-----------|------|---|------------------------------|---------------------------------------|---------------------------|-----------------|---------------------------|--|---|--------------------------------------|--|
| OCT 1992 | | | | | | | | | | | |
| 16... | 1145 | 12 | 498 | 7.2 | 30.5 | 6.2 | 4.8 | 63 | 35 | 40000 | 9300 |
| DEC 17... | 1100 | 6.4 | 317 | 6.6 | 25.3 | 1.8 | 6.1 | 80 | <10 | K600000 | 540000 |
| FEB 1993 | | | | | | | | | | | |
| 12... | 1245 | 7.5 | 313 | 7.2 | 29.0 | 11 | 7.4 | 96 | 23 | 600000 | 80000 |
| APR 26... | 1410 | 13 | 264 | 6.9 | 31.0 | 7.1 | 6.7 | 88 | <10 | 23000 | 39000 |
| MAY 26... | 1310 | 4.3 | 329 | 7.2 | 28.0 | 4.5 | 6.1 | 78 | 42 | 21000 | 3800 |
| AUG 10... | 1300 | 17 | 301 | 6.8 | 32.0 | 2.9 | 4.3 | 56 | 15 | 33000 | 4500 |

| DATE | HARDNESS TOTAL (MG/L AS CaCO3) | HARDNESS NONCARB WH WAT TOT FLD MG/L AS CaCO3 | CALCIUM DIS-SOLVED (MG/L AS Ca) | MAGNESIUM, DIS-SOLVED (MG/L AS Mg) | SODIUM, DIS-SOLVED (MG/L AS Na) | SODIUM ADSORPTION RATIO | POTASSIUM, DIS-SOLVED (MG/L AS K) | ALKALINITY WAT WH TOT FET MG/L AS CaCO3 | SULFIDE TOTAL (MG/L AS S) | SULFATE DIS-SOLVED (MG/L AS SO4) | CHLORIDE, DIS-SOLVED (MG/L AS Cl) |
|-----------|--------------------------------|---|---------------------------------|------------------------------------|---------------------------------|-------------------------|-----------------------------------|---|---------------------------|----------------------------------|-----------------------------------|
| OCT 1992 | | | | | | | | | | | |
| 16... | 53 | 0 | 14 | 4.2 | 18 | 2 | 2.4 | 84 | <0.5 | 12 | 19 |
| DEC 17... | -- | -- | -- | -- | -- | -- | -- | 70 | -- | -- | -- |
| FEB 1993 | | | | | | | | | | | |
| 12... | -- | -- | -- | -- | -- | -- | -- | 80 | -- | -- | -- |
| APR 26... | 94 | 5 | 26 | 7.1 | 29 | 1 | 2.1 | 93 | <0.5 | 13 | 32 |
| MAY 26... | -- | -- | -- | -- | -- | -- | -- | 89 | -- | -- | -- |
| AUG 10... | 85 | 2 | 23 | 6.6 | 26 | 1 | 2.3 | 120 | -- | 9.6 | 27 |

| DATE | FLUORIDE, DIS-SOLVED (MG/L AS F) | SILICA, DIS-SOLVED (MG/L AS SiO2) | SOLIDS, SUM OF CONSTITUENTS, DIS-SOLVED (MG/L) | SOLIDS, DIS-SOLVED (TONS PER DAY) | RESIDUE TOTAL AT 105 DEG. C, SUSPENDED (MG/L) | NITROGEN, NITRATE TOTAL (MG/L AS N) | NITROGEN, NITRITE TOTAL (MG/L AS N) | NITROGEN, NO2+NO3 TOTAL (MG/L AS N) | NITROGEN, AMMONIA TOTAL (MG/L AS N) | NITROGEN, ORGANIC TOTAL (MG/L AS N) |
|-----------|----------------------------------|-----------------------------------|--|-----------------------------------|---|-------------------------------------|-------------------------------------|-------------------------------------|-------------------------------------|-------------------------------------|
| OCT 1992 | | | | | | | | | | |
| 16... | 0.10 | 32 | 210 | 6.80 | 12 | 0.740 | 0.030 | 0.770 | 0.250 | 0.53 |
| DEC 17... | -- | -- | -- | -- | 22 | 0.870 | 0.030 | 0.900 | 0.730 | 0.47 |
| FEB 1993 | | | | | | | | | | |
| 12... | -- | -- | -- | -- | 19 | 0.760 | 0.040 | 0.800 | 1.30 | 0.40 |
| APR 26... | 0.10 | 39 | 204 | 7.16 | 11 | 0.680 | 0.020 | 0.700 | 0.310 | 0.29 |
| MAY 26... | -- | -- | -- | -- | 24 | 0.930 | 0.070 | 1.00 | 0.620 | 0.48 |
| AUG 10... | 0.10 | 39 | 206 | 9.46 | 11 | 0.980 | 0.020 | 1.00 | 0.250 | 0.15 |

K = non-ideal count

RIO HUMACAO BASIN

50082000 RIO HUMACAO AT HIGHWAY 3 AT HUMACAO, PR--Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993

| DATE | NITRO- GEN, AM- MONIA + ORGANIC TOTAL (MG/L AS N) | NITRO- GEN, TOTAL (MG/L AS N) | NITRO- GEN, TOTAL (MG/L AS NO3) | PHOS- PHORUS TOTAL (MG/L AS P) | ARSENIC TOTAL (UG/L AS AS) | BARIUM, TOTAL RECOV- ERABLE (UG/L AS BA) | BORON, TOTAL RECOV- ERABLE (UG/L AS B) | CADMIUM TOTAL RECOV- ERABLE (UG/L AS CD) | CHRO- MIUM, TOTAL RECOV- ERABLE (UG/L AS CR) | COPPER, TOTAL RECOV- ERABLE (UG/L AS CU) |
|-----------|---|---|---|--|-------------------------------------|---|---|---|--|---|
| OCT 1992 | | | | | | | | | | |
| 16... | 0.88 | 1.4 | 6.1 | 0.220 | 4 | <100 | 20 | 4 | 7 | 11 |
| DEC 17... | 1.2 | 2.1 | 9.3 | 0.320 | -- | -- | -- | -- | -- | -- |
| FEB 1993 | | | | | | | | | | |
| 12... | 1.7 | 2.5 | 11 | 0.290 | -- | -- | -- | -- | -- | -- |
| APR 26... | 0.60 | 1.3 | 5.8 | 0.160 | <1 | <100 | 40 | <1 | <1 | <10 |
| MAY 26... | 1.1 | 2.7 | 11 | 0.580 | -- | -- | -- | -- | -- | -- |
| AUG 10... | 0.40 | 1.4 | 6.2 | 0.150 | -- | -- | -- | -- | -- | -- |

[illegible]

RIO GUAYANES BASIN

50083500 RIO GUAYANES AT YABUCOA, PR

WATER-QUALITY RECORDS

LOCATION.--Lat 18°03'33", long 65°54'03", at bridge on Highway 182, 1.4 mi (2.2 km) west-northwest of Yabucoa plaza.

DRAINAGE AREA.--17.2 mi² (44.6 km²).

PERIOD OF RECORD.--Water years 1958-62, 1968-70, 1980 to current year.

WATER-QUALITY DATA, WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993

| DATE | TIME | DIS-CHARGE, INST. CUBIC FEET PER SECOND | SPE-CIFIC CON-DUCT-ANCE (US/CM) | PH WATER WHOLE FIELD (STAND-ARD UNITS) | TEMPER-ATURE WATER (DEG C) | TUR-BID-ITY (NTU) | OXYGEN, DIS-SOLVED (MG/L) | OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION) | OXYGEN DEMAND, CHEM-ICAL (HIGH LEVEL) (MG/L) | COLI-FORM, FECAL, UM-MF (COLS./100 ML) | STREP-TOCOCCI, FECAL, (COLS. PER 100 ML) |
|-----------|------|---|---------------------------------|--|----------------------------|-------------------|---------------------------|---|--|--|--|
| OCT 1992 | | | | | | | | | | | |
| 19... | 1150 | 17 | 175 | 7.4 | 26.5 | 3.6 | 6.7 | 81 | <10 | 530 | 200 |
| DEC 17... | 0945 | 17 | 190 | 7.6 | 21.8 | 4.8 | 7.7 | 94 | <10 | 760 | 210 |
| FEB 1993 | | | | | | | | | | | |
| 12... | 1420 | 50 | 111 | 7.2 | 24.5 | 76 | 6.8 | 78 | 29 | K60000 | K53000 |
| MAY 03... | 1200 | 24 | 200 | 7.1 | 24.0 | 73 | 7.6 | 90 | 29 | 500 | 390 |
| JUN 07... | 1315 | 20 | 209 | 7.2 | 27.5 | 5.5 | 7.4 | 88 | <10 | 5200 | 4100 |
| AUG 11... | 1430 | 18 | 150 | 6.6 | 27.5 | 52 | 5.8 | 61 | 20 | 60000 | 9700 |

| DATE | HARD-NESS TOTAL (MG/L AS CACO3) | HARD-NESS NONCARB WH WAT TOT FLD MG/L AS CACO3 | CALCIUM DIS-SOLVED (MG/L AS CA) | MAGNE-SIUM, DIS-SOLVED (MG/L AS MG) | SODIUM, DIS-SOLVED (MG/L AS NA) | SODIUM AD-SORP-TION RATIO | POTAS-SIUM, DIS-SOLVED (MG/L AS K) | ALKA-LINITY WAT WH TOT FET MG/L AS CACO3 | SULFIDE TOTAL (MG/L AS S) | SULFATE DIS-SOLVED (MG/L AS SO4) | CHLO-RIDE, DIS-SOLVED (MG/L AS CL) |
|-----------|---------------------------------|--|---------------------------------|-------------------------------------|---------------------------------|---------------------------|------------------------------------|--|---------------------------|----------------------------------|------------------------------------|
| OCT 1992 | | | | | | | | | | | |
| 19... | 29 | 0 | 2.8 | 0.6 | 4.3 | 0.7 | 1.5 | 64 | <0.5 | 4.2 | 10 |
| DEC 17... | -- | -- | -- | -- | -- | -- | -- | 61 | -- | -- | -- |
| FEB 1993 | | | | | | | | | | | |
| 12... | -- | -- | -- | -- | -- | -- | -- | 52 | -- | -- | -- |
| MAY 03... | 34 | 1 | 8.7 | 3.1 | 11 | 0.8 | 2.2 | 28 | <0.5 | 4.6 | 12 |
| JUN 07... | -- | -- | -- | -- | -- | -- | -- | 56 | -- | -- | -- |
| AUG 11... | 44 | 0 | 11 | 3.9 | 14 | 0.9 | 1.6 | 46 | -- | 3.6 | 12 |

| DATE | FLUO-RIDE, DIS-SOLVED (MG/L AS F) | SILICA, DIS-SOLVED (MG/L AS SIO2) | SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L) | SOLIDS, DIS-SOLVED (TONS PER DAY) | RESIDUE TOTAL AT 105 DEG. C, SUS-PENDED (MG/L) | NITRO-GEN, NITRATE TOTAL (MG/L AS N) | NITRO-GEN, NITRITE TOTAL (MG/L AS N) | NITRO-GEN, NO2+NO3 TOTAL (MG/L AS N) | NITRO-GEN, AMMONIA TOTAL (MG/L AS N) | NITRO-GEN, ORGANIC TOTAL (MG/L AS N) |
|-----------|-----------------------------------|-----------------------------------|---|-----------------------------------|--|--------------------------------------|--------------------------------------|--------------------------------------|--------------------------------------|--------------------------------------|
| OCT 1992 | | | | | | | | | | |
| 19... | 0.10 | 16 | 49 | 2.25 | 6 | 0.310 | 0.010 | 0.320 | 0.050 | 0.15 |
| DEC 17... | -- | -- | -- | -- | 88 | 0.190 | 0.010 | 0.200 | 0.020 | 0.48 |
| FEB 1993 | | | | | | | | | | |
| 12... | -- | -- | -- | -- | 182 | 0.390 | 0.010 | 0.400 | 0.020 | 1.2 |
| MAY 03... | 0.10 | 27 | 85 | 5.56 | 384 | 0.290 | 0.010 | 0.300 | 0.040 | 0.40 |
| JUN 07... | -- | -- | -- | -- | 4 | 0.190 | 0.010 | 0.200 | 0.050 | 0.35 |
| AUG 11... | 0.10 | 33 | 107 | 5.20 | 126 | 0.370 | 0.030 | 0.400 | 0.080 | 0.30 |

K = non-ideal count

RIO GUAYANES BASIN

50083500 RIO GUAYANES AT YABUCOA, PR--Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993

| DATE | NITRO- GEN, AM- MONIA + ORGANIC TOTAL (MG/L AS N) | NITRO- GEN, TOTAL (MG/L AS N) | NITRO- GEN, TOTAL (MG/L AS NO3) | PHOS- PHORUS TOTAL (MG/L AS P) | ARSENIC TOTAL (UG/L AS AS) | BARIUM, TOTAL RECOV- ERABLE (UG/L AS BA) | BORON, TOTAL RECOV- ERABLE (UG/L AS B) | CADMIUM TOTAL RECOV- ERABLE (UG/L AS CD) | CHRO- MIUM, TOTAL RECOV- ERABLE (UG/L AS CR) | COPPER, TOTAL RECOV- ERABLE (UG/L AS CU) |
|----------|---|---|---|--|-------------------------------------|---|---|---|--|---|
| OCT 1992 | | | | | | | | | | |
| 19... | 0.20 | 2.3 | 4.0 | 0.050 | <1 | 300 | <10 | 20 | <1 | 130 |
| DEC | | | | | | | | | | |
| 17... | 0.50 | 1.1 | 3.4 | 0.060 | -- | -- | -- | -- | -- | -- |
| FEB 1993 | | | | | | | | | | |
| 12... | 1.4 | 1.2 | 3.5 | 0.320 | -- | -- | -- | -- | -- | -- |
| MAY | | | | | | | | | | |
| 03... | 0.44 | 0.40 | 3.1 | 0.070 | <1 | <100 | 30 | <1 | <1 | 10 |
| JUN | | | | | | | | | | |
| 07... | <0.20 | -- | -- | 0.040 | -- | -- | -- | -- | -- | -- |
| AUG | | | | | | | | | | |
| 11... | 0.30 | 0.30 | -- | 0.050 | -- | -- | -- | -- | -- | -- |

| DATE | IRON, TOTAL RECOV- ERABLE (UG/L AS FE) | LEAD, TOTAL RECOV- ERABLE (UG/L AS PB) | MANGA- NESE, TOTAL RECOV- ERABLE (UG/L AS MN) | MERCURY TOTAL RECOV- ERABLE (UG/L AS HG) | SELE- NIUM, TOTAL (UG/L AS SE) | SILVER, TOTAL RECOV- ERABLE (UG/L AS AG) | ZINC, TOTAL RECOV- ERABLE (UG/L AS ZN) | CYANIDE TOTAL (MG/L AS CN) | PHENOLS TOTAL (UG/L) | METHY- LENE BLUE ACTIVE SUB- STANCE (MG/L) |
|----------|---|---|---|---|--|---|---|-------------------------------------|----------------------------|--|
| OCT 1992 | | | | | | | | | | |
| 19... | 4600 | 12 | 1100 | 0.40 | <1 | <1 | <10 | <0.010 | 2 | 0.03 |
| DEC | | | | | | | | | | |
| 17... | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| FEB 1993 | | | | | | | | | | |
| 12... | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| MAY | | | | | | | | | | |
| 03... | 3300 | 2 | 130 | <0.10 | <1 | <1 | <10 | <0.010 | 1 | 0.02 |
| JUN | | | | | | | | | | |
| 07... | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| AUG | | | | | | | | | | |
| 11... | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |

PESTICIDE ANALYSES

| DATE | TIME | PCB, TOTAL (UG/L) | ALDRIN, TOTAL (UG/L) | CHLOR- DANE, TOTAL (UG/L) | DDD, TOTAL (UG/L) | DDE, TOTAL (UG/L) | DDT, TOTAL (UG/L) | DI- AZINON, TOTAL (UG/L) | DI- ELDRIN TOTAL (UG/L) | ENDO- SULFAN, TOTAL (UG/L) |
|----------|------|-------------------------|----------------------------|------------------------------------|-------------------------|-------------------------|-------------------------|-----------------------------------|----------------------------------|-------------------------------------|
| JUN 1993 | | | | | | | | | | |
| 18... | 1135 | <0.1 | <0.010 | <0.1 | <0.010 | <0.010 | <0.010 | <0.01 | <0.010 | <0.010 |

| DATE | ENDRIN WATER UNFLTRD REC (UG/L) | ETHION, TOTAL (UG/L) | HEPTA- CHLOR, TOTAL (UG/L) | HEPTA- CHLOR EPOXIDE TOTAL (UG/L) | LINDANE TOTAL (UG/L) | MALA- THION, TOTAL (UG/L) | METH- OXY- CHLOR, TOTAL (UG/L) | METHYL PARA- THION, TOTAL (UG/L) | MIREX, TOTAL (UG/L) |
|----------|---|----------------------------|-------------------------------------|---|----------------------------|------------------------------------|--|--|---------------------------|
| JUN 1993 | | | | | | | | | |
| 18... | <0.010 | <0.01 | <0.010 | <0.010 | <0.010 | <0.01 | <0.01 | <0.01 | <0.01 |

| DATE | PARA- THION, TOTAL (UG/L) | NAPH- THA- LENES, POLY- CHLOR. TOTAL (UG/L) | PER- THANE TOTAL (UG/L) | TOX- APHENE, TOTAL (UG/L) | TOTAL TRI- THION (UG/L) | 2,4-D, TOTAL (UG/L) | 2,4,5-T TOTAL (UG/L) | 2, 4-DP TOTAL (UG/L) | SILVEX, TOTAL (UG/L) |
|----------|------------------------------------|---|----------------------------------|------------------------------------|----------------------------------|---------------------------|----------------------------|----------------------------|----------------------------|
| JUN 1993 | | | | | | | | | |
| 18... | <0.01 | <0.10 | <0.1 | <1 | <0.01 | <0.01 | <0.01 | <0.01 | <0.01 |

RIO GUAYANES BASIN

333

50086500 RIO GUAYANES ABOVE MOUTH AT PLAYA DE GUAYANES, PR

WATER-QUALITY RECORDS

LOCATION.--Lat 18°03'45", long 65°49'42", at old railroad crossing, 0.2 mi (0.3 km) from mouth, 0.4 mi (0.6 km) west of Playa de Guayanés, and 3.5 mi (5.6 km) northeast of Yabucoa plaza.

DRAINAGE AREA.--34.0 mi² (88.1 km²).

PERIOD OF RECORD.--Water years 1974 to current year.

WATER-QUALITY DATA, WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993

| DATE | TIME | DIS- CHARGE, INST. CUBIC FEET PER SECOND | SPE- CIFIC CON- DUCT- ANCE (US/CM) | PH WATER WHOLE FIELD (STAND- ARD UNITS) | TEMPER- ATURE WATER (DEG C) | TUR- BID- ITY (NTU) | OXYGEN, DIS- SOLVED (MG/L) | OXYGEN, DIS- SOLVED (PER- CENT SATUR- ATION) | OXYGEN DEMAND, CHEM- ICAL (HIGH LEVEL) (MG/L) | COLI- FORM, FECAL, 0.45 UM-MF (COLS./ 100 ML) | STREP- TOCOCCI FECAL, (COLS. PER 100 ML) |
|----------|------|--|---|---|--------------------------------------|------------------------------|-------------------------------------|--|---|---|---|
| OCT 1992 | | | | | | | | | | | |
| 19... | 1350 | 44 | 186 | 7.6 | 28.5 | 22 | 7.8 | 100 | 40 | 350 | K13 |
| DEC | | | | | | | | | | | |
| 23... | 1030 | 59 | 168 | 7.6 | 25.6 | 14 | 6.3 | 84 | 11 | 1200 | 450 |
| MAR 1993 | | | | | | | | | | | |
| 03... | 1245 | 71 | 210 | 7.6 | 25.0 | 18 | 7.1 | 90 | 53 | 370 | 280 |
| APR | | | | | | | | | | | |
| 26... | 1200 | 54 | 185 | 7.3 | 31.0 | 11 | 7.7 | 100 | <10 | 280 | 320 |
| MAY | | | | | | | | | | | |
| 26... | 1220 | 64 | 168 | 7.1 | 24.0 | 62 | 7.6 | 98 | 24 | K17000 | 7000 |
| AUG | | | | | | | | | | | |
| 10... | 1110 | 48 | 185 | 7.0 | 30.5 | 12 | 4.9 | 59 | <10 | 550 | 260 |

| DATE | HARD- NESS TOTAL (MG/L AS CACO3) | HARD- NESS NONCARB WH WAT TOT FLD MG/L AS CACO3 | CALCIUM DIS- SOLVED (MG/L AS CA) | MAGNE- SIUM, DIS- SOLVED (MG/L AS MG) | SODIUM, DIS- SOLVED (MG/L AS NA) | SODIUM AD- SORP- TION RATIO | POTAS- SIUM, DIS- SOLVED (MG/L AS K) | ALKA- LITY WAT WH TOT FET MG/L AS CACO3 | SULFIDE TOTAL (MG/L AS S) | SULFATE DIS- SOLVED (MG/L AS SO4) | CHLO- RIDE, DIS- SOLVED (MG/L AS CL) |
|----------|---|---|--|--|--|---|---|--|------------------------------------|---|---|
| OCT 1992 | | | | | | | | | | | |
| 19... | 48 | 0 | 12 | 4.7 | 11 | 2 | 3.2 | 62 | <0.5 | 8.7 | 13 |
| DEC | | | | | | | | | | | |
| 23... | -- | -- | -- | -- | -- | -- | -- | 62 | -- | -- | -- |
| MAR 1993 | | | | | | | | | | | |
| 03... | -- | -- | -- | -- | -- | -- | -- | 67 | -- | -- | -- |
| APR | | | | | | | | | | | |
| 26... | 51 | 0 | 13 | 4.6 | 19 | 1 | 1.7 | 64 | <0.5 | 5.0 | 15 |
| MAY | | | | | | | | | | | |
| 26... | -- | -- | -- | -- | -- | -- | -- | 62 | -- | -- | -- |
| AUG | | | | | | | | | | | |
| 10... | 66 | 1 | 17 | 5.7 | 22 | 1 | 2.6 | 72 | -- | 6.9 | 22 |

| DATE | FLUO- RIDE, DIS- SOLVED (MG/L AS F) | SILICA, DIS- SOLVED (MG/L AS SIO2) | SOLIDS, SUM OF CONSTI- TUENTS, DIS- SOLVED (MG/L) | SOLIDS, DIS- SOLVED (TONS PER DAY) | RESIDUE TOTAL AT 105 DEG. C, SUS- PENDE (MG/L) | NITRO- GEN, NITRATE TOTAL (MG/L AS N) | NITRO- GEN, NITRITE TOTAL (MG/L AS N) | NITRO- GEN, NO2+NO3 TOTAL (MG/L AS N) | NITRO- GEN, AMMONIA TOTAL (MG/L AS N) | NITRO- GEN, ORGANIC TOTAL (MG/L AS N) |
|----------|--|---|---|---|--|--|--|--|--|--|
| OCT 1992 | | | | | | | | | | |
| 19... | <0.10 | 35 | 136 | 16.2 | 24 | 0.390 | 0.010 | 0.400 | 0.960 | 0.94 |
| DEC | | | | | | | | | | |
| 23... | -- | -- | -- | -- | 12 | 0.490 | 0.010 | 0.500 | 0.160 | 1.9 |
| MAR 1993 | | | | | | | | | | |
| 03... | -- | -- | -- | -- | 36 | 0.390 | 0.010 | 0.400 | 0.110 | 1.1 |
| APR | | | | | | | | | | |
| 26... | <0.10 | 38 | 135 | 19.8 | 8 | 0.290 | 0.010 | 0.300 | 0.030 | 0.47 |
| MAY | | | | | | | | | | |
| 26... | -- | -- | -- | -- | 81 | 0.390 | 0.010 | 0.400 | 0.080 | 0.72 |
| AUG | | | | | | | | | | |
| 10... | 0.10 | 37 | 156 | 20.2 | 27 | 0.380 | 0.020 | 0.400 | 0.02 | 0.58 |

K = non-ideal count

RIO GUAYANES BASIN

50086500 RIO GUAYANES ABOVE MOUTH AT PLAYA DE GUAYANES, PR--Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993

| DATE | NITRO- GEN, AM- MONIA + ORGANIC TOTAL (MG/L AS N) | NITRO- GEN, TOTAL (MG/L AS N) | NITRO- GEN, TOTAL (MG/L AS NO3) | PHOS- PHORUS TOTAL (MG/L AS P) | ARSENIC TOTAL (UG/L AS AS) | BARIUM, TOTAL RECOV- ERABLE (UG/L AS BA) | BORON, TOTAL RECOV- ERABLE (UG/L AS B) | CADMIUM TOTAL RECOV- ERABLE (UG/L AS CD) | CHRO- MIUM, TOTAL RECOV- ERABLE (UG/L AS CR) | COPPER, TOTAL RECOV- ERABLE (UG/L AS CU) |
|-----------|---|---|---|--|-------------------------------------|---|---|---|--|---|
| OCT 1992 | | | | | | | | | | |
| 19... | 1.9 | 2.3 | 10 | 0.060 | <1 | <100 | <10 | <1 | <1 | <10 |
| DEC 23... | 2.1 | 2.6 | 16 | 0.090 | -- | -- | -- | -- | -- | -- |
| MAR 1993 | | | | | | | | | | |
| 03... | 1.2 | 1.6 | 12 | 0.040 | -- | -- | -- | -- | -- | -- |
| APR 26... | 0.50 | 0.8 | 7.1 | 0.040 | <1 | <100 | 30 | <1 | <1 | <10 |
| MAY 26... | 0.80 | 1.2 | 3.5 | 0.060 | -- | -- | -- | -- | -- | -- |
| AUG 10... | 0.60 | 1.0 | 4.4 | 0.120 | -- | -- | -- | -- | -- | -- |

[illegible]

RIO MAUNABO BASIN

335

50090500 RIO MAUNABO AT LIZAS, PR

LOCATION.--Lat 18°01'38", long 65°56'24", Hydrologic Unit 21010005, on right bank, off Highway 759 at Lizas, about 1.0 mi (1.6 km) downstream from Quebrada Coroco, and about 3.0 mi (4.8 km) northwest of Maunabo.

DRAINAGE AREA.--5.38 mi² (13.93 km²).

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--February 1971 to January 1985, February 1991 to current year.

GAGE.--Water-stage recorder and crest-stage gage. Elevation of gage is 230 ft (70 m), from topographic map.

REMARKS.--Records fair except those for estimated daily discharges and July 18 to Sept. 30, which are poor.
Gage-height and precipitation satellite telemetry at station.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993
DAILY MEAN VALUES

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|--------|-------|-------|
| 1 | 9.4 | 9.0 | 20 | 23 | 14 | 7.7 | 5.5 | 9.1 | 4.9 | 6.1 | 16 | 11 |
| 2 | 8.7 | 8.4 | 16 | 17 | 13 | 7.8 | 6.0 | 8.6 | 4.9 | 17 | 16 | 11 |
| 3 | 8.1 | 17 | 42 | 13 | 12 | 7.4 | 7.0 | 8.0 | 4.4 | 40 | 16 | 11 |
| 4 | 7.7 | 106 | 24 | 13 | 12 | 7.3 | 5.8 | 4.8 | 4.1 | 9.8 | 14 | 12 |
| 5 | 7.2 | 17 | 17 | 14 | 11 | 7.3 | 5.4 | 4.4 | 3.8 | 6.9 | 12 | 25 |
| 6 | 7.1 | 42 | 15 | 24 | 11 | 7.1 | 5.5 | 4.9 | 3.5 | 6.2 | 11 | 13 |
| 7 | 6.9 | 43 | 13 | 19 | 11 | 6.9 | 5.0 | 4.1 | 3.8 | 9.2 | 11 | 13 |
| 8 | 6.6 | 17 | 12 | 13 | 11 | 7.1 | 5.0 | 4.2 | 6.3 | 8.5 | 12 | 22 |
| 9 | 6.4 | 14 | 11 | 12 | 10 | 7.2 | 5.0 | 25 | 4.2 | 6.0 | 11 | 21 |
| 10 | 6.5 | 16 | 11 | 12 | 9.9 | 7.0 | 4.8 | 10 | 9.3 | 5.5 | 14 | 28 |
| 11 | 6.1 | 12 | 10 | 13 | 10 | 7.2 | 5.0 | 5.9 | 5.0 | 577 | 11 | 16 |
| 12 | 5.8 | 11 | 10 | 13 | 21 | 6.8 | 6.0 | 4.8 | 4.1 | 36 | 12 | 13 |
| 13 | 5.8 | 10 | 10 | 11 | 13 | 7.7 | 9.2 | 4.8 | 7.3 | 20 | 14 | 13 |
| 14 | 5.5 | 13 | 9.5 | 11 | 11 | 6.9 | 11 | 96 | 21 | 19 | 15 | 12 |
| 15 | 5.6 | 10 | 9.0 | 10 | 10 | 6.6 | 6.4 | 10 | 18 | 28 | 16 | 11 |
| 16 | 7.4 | 12 | 8.6 | 10 | 9.9 | 6.4 | 5.4 | 6.6 | 18 | 40 | 37 | 12 |
| 17 | 6.4 | 13 | 8.4 | 10 | 9.9 | 6.6 | 5.0 | 6.4 | 13 | 19 | 12 | 11 |
| 18 | 5.3 | 86 | 8.3 | 10 | 9.6 | 6.6 | 4.7 | 7.4 | 42 | 21 | 10 | 11 |
| 19 | 6.6 | 28 | 8.2 | 11 | 9.2 | 8.8 | 6.3 | 5.2 | 200 | 19 | 10 | 9.9 |
| 20 | 8.0 | 58 | 8.1 | 10 | 9.1 | 16 | 4.4 | 6.6 | 62 | 19 | 10 | 9.6 |
| 21 | 96 | 18 | 7.9 | 9.5 | 8.7 | 7.9 | 4.3 | 5.5 | 12 | 19 | 9.8 | 11 |
| 22 | 36 | 26 | 7.6 | 16 | 8.4 | 6.6 | 4.4 | 5.0 | 11 | 62 | 9.7 | 11 |
| 23 | 12 | 17 | 7.6 | 14 | 8.6 | 7.3 | 5.1 | 5.3 | 7.4 | 77 | 25 | 11 |
| 24 | 25 | 42 | 8.6 | 11 | 8.4 | 6.3 | 4.8 | 11 | 6.5 | 44 | 26 | 10 |
| 25 | 18 | 17 | 10 | 18 | 8.0 | 6.3 | 4.6 | 11 | 5.7 | 28 | 11 | 12 |
| 26 | 12 | 14 | 42 | 11 | 7.9 | 6.7 | 4.6 | 24 | 5.2 | 21 | 10 | 11 |
| 27 | 9.0 | 18 | 14 | 15 | 7.7 | 6.1 | 4.6 | 62 | 5.0 | 20 | 11 | 10 |
| 28 | 7.9 | 32 | 10 | 19 | 7.6 | 5.9 | 4.4 | 16 | 4.7 | 16 | 10 | 12 |
| 29 | 13 | 18 | 13 | 56 | --- | 5.7 | 4.3 | 8.2 | 5.3 | 16 | 10 | e98 |
| 30 | 8.7 | 29 | 25 | 18 | --- | 5.9 | 5.7 | 6.4 | 6.2 | 15 | 12 | e37 |
| 31 | 20 | --- | 12 | 15 | --- | 5.6 | --- | 5.3 | --- | 16 | 14 | --- |
| TOTAL | 394.7 | 773.4 | 428.8 | 471.5 | 292.9 | 222.7 | 165.2 | 396.5 | 508.6 | 1247.2 | 428.5 | 508.5 |
| MEAN | 12.7 | 25.8 | 13.8 | 15.2 | 10.5 | 7.18 | 5.51 | 12.8 | 17.0 | 40.2 | 13.8 | 16.9 |
| MAX | 96 | 106 | 42 | 56 | 21 | 16 | 11 | 96 | 200 | 577 | 37 | 98 |
| MIN | 5.3 | 8.4 | 7.6 | 9.5 | 7.6 | 5.6 | 4.3 | 4.1 | 3.5 | 5.5 | 9.7 | 9.6 |
| AC-FT | 783 | 1530 | 851 | 935 | 581 | 442 | 328 | 786 | 1010 | 2470 | 850 | 1010 |
| CFSM | 2.37 | 4.79 | 2.57 | 2.83 | 1.94 | 1.34 | 1.02 | 2.38 | 3.15 | 7.48 | 2.57 | 3.15 |
| IN. | 2.73 | 5.35 | 2.96 | 3.26 | 2.03 | 1.54 | 1.14 | 2.74 | 3.52 | 8.62 | 2.96 | 3.52 |

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1971 - 1993, BY WATER YEAR (WY)

| | MEAN | 28.2 | 32.4 | 18.1 | 12.9 | 11.0 | 9.55 | 7.12 | 13.5 | 17.8 | 18.4 | 24.2 | 25.3 |
|------|------|------|------|------|------|------|------|------|------|------|------|------|------|
| MAX | 52.6 | 88.9 | 35.2 | 27.1 | 24.5 | 18.9 | 10.8 | 25.1 | 47.1 | 40.2 | 131 | 81.5 | |
| (WY) | 1979 | 1978 | 1978 | 1992 | 1982 | 1976 | 1976 | 1979 | 1979 | 1993 | 1979 | 1979 | |
| MIN | 12.7 | 7.46 | 8.87 | 7.79 | 6.10 | 4.32 | 3.92 | 5.13 | 4.40 | 3.70 | 6.18 | 7.99 | |
| (WY) | 1982 | 1982 | 1981 | 1981 | 1979 | 1979 | 1979 | 1974 | 1974 | 1974 | 1974 | 1980 | |

SUMMARY STATISTICS

FOR 1992 CALENDAR YEAR

FOR 1993 WATER YEAR

WATER YEARS 1971 - 1993

| | | | |
|--------------------------|--------|--------|-------|
| ANNUAL TOTAL | 6441.6 | 5838.5 | |
| ANNUAL MEAN | 17.6 | 16.0 | 18.3 |
| HIGHEST ANNUAL MEAN | | | 36.7 |
| LOWEST ANNUAL MEAN | | | 12.1 |
| HIGHEST DAILY MEAN | 290 | Sep 20 | 2480 |
| LOWEST DAILY MEAN | 3.6 | May 4 | 2.2 |
| ANNUAL SEVEN-DAY MINIMUM | 4.2 | Apr 4 | 2.8 |
| INSTANTANEOUS PEAK FLOW | | | 2680 |
| INSTANTANEOUS PEAK STAGE | | | 10.65 |
| ANNUAL RUNOFF (AC-FT) | 12780 | 11580 | 13290 |
| ANNUAL RUNOFF (CFSM) | 3.27 | 2.97 | 3.41 |
| ANNUAL RUNOFF (INCHES) | 44.54 | 40.37 | 46.32 |
| 10 PERCENT EXCEEDS | 29 | 25 | 33 |
| 50 PERCENT EXCEEDS | 11 | 10 | 11 |
| 90 PERCENT EXCEEDS | 5.1 | 5.1 | 5.1 |

e Estimated

RIO MAUNABO BASIN

50091000 RIO MAUNABO AT MAUNABO, PR

WATER-QUALITY RECORDS

LOCATION.--Lat 18°00'24", long 65°54'19", at bridge on Highway 3, 0.4 mi (0.6 km) southwest of Maunabo plaza, and 1.3 mi (2.1 km) upstream from mouth.

DRAINAGE AREA.--12.4 mi² (32.1 km²).

PERIOD OF RECORD.--Water years 1958-66, 1975 to current year.

WATER-QUALITY DATA, WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993

| DATE | TIME | DIS-CHARGE, INST. CUBIC FEET PER SECOND | SPE-CIFIC CON-DUCT-ANCE (US/CM) | PH WATER WHOLE FIELD (STAND-ARD UNITS) | TEMPER-ATURE WATER (DEG C) | TUR-BID-ITY (NTU) | OXYGEN, DIS-SOLVED (MG/L) | OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION) | OXYGEN DEMAND, CHEM-ICAL (HIGH LEVEL) (MG/L) | COLI-FORM, FECAL, 0.45 UM-MF (COLS./100 ML) | STREP-TOCOCCI, FECAL, (COLS. PER 100 ML) |
|----------|------|---|---------------------------------|--|----------------------------|-------------------|---------------------------|---|--|---|--|
| OCT 1992 | | | | | | | | | | | |
| 20... | 1250 | 7.1 | 255 | 7.3 | 29.5 | 4.6 | 6.3 | 83 | <10 | 2100 | 300 |
| DEC | | | | | | | | | | | |
| 21... | 1235 | 9.3 | 265 | 7.7 | 25.9 | 2.6 | 7.0 | 88 | 32 | 450 | 380 |
| MAR 1993 | | | | | | | | | | | |
| 03... | 1040 | 6.7 | 272 | 7.5 | 25.5 | 5.3 | 8.0 | 102 | <10 | 570 | 330 |
| APR | | | | | | | | | | | |
| 28... | 1345 | 8.7 | 257 | 7.2 | 33.0 | 2.8 | 8.1 | 106 | <10 | 3300 | K140 |
| JUN | | | | | | | | | | | |
| 07... | 1200 | 9.4 | 253 | 7.1 | 29.0 | 2.8 | 7.5 | 90 | <10 | 3300 | 490 |
| AUG | | | | | | | | | | | |
| 11... | 1240 | 7.2 | 237 | 7.2 | 29.5 | 17 | 5.4 | 78 | 12 | 40000 | 6700 |

| DATE | HARD-NESS TOTAL (MG/L AS CACO3) | HARD-NESS NONCARB WH WAT TOT FLD (MG/L AS CACO3) | CALCIUM DIS-SOLVED (MG/L AS CA) | MAGNE-SIUM, DIS-SOLVED (MG/L AS MG) | SODIUM, DIS-SOLVED (MG/L AS NA) | SODIUM AD-SORP-TION RATIO | POTAS-SIUM, DIS-SOLVED (MG/L AS K) | ALKA-LINITY WAT WH TOT FET FIELD (MG/L AS CACO3) | SULFIDE TOTAL (MG/L AS S) | SULFATE DIS-SOLVED (MG/L AS SO4) | CHLO-RIDE, DIS-SOLVED (MG/L AS CL) |
|----------|---------------------------------|--|---------------------------------|-------------------------------------|---------------------------------|---------------------------|------------------------------------|--|---------------------------|----------------------------------|------------------------------------|
| OCT 1992 | | | | | | | | | | | |
| 20... | 82 | 1 | 20 | 7.7 | 22 | 1 | 1.5 | 82 | <0.5 | 10 | 19 |
| DEC | | | | | | | | | | | |
| 21... | -- | -- | -- | -- | -- | -- | -- | 87 | -- | -- | -- |
| MAR 1993 | | | | | | | | | | | |
| 03... | -- | -- | -- | -- | -- | -- | -- | 90 | -- | -- | -- |
| APR | | | | | | | | | | | |
| 28... | 85 | 0 | 21 | 7.8 | 25 | 1 | 1.7 | 74 | 0.6 | 9.8 | 21 |
| JUN | | | | | | | | | | | |
| 07... | -- | -- | -- | -- | -- | -- | -- | 84 | -- | -- | -- |
| AUG | | | | | | | | | | | |
| 11... | 73 | 1 | 18 | 6.8 | 19 | 1 | 1.5 | 71 | -- | 10 | 20 |

| DATE | FLUO-RIDE, DIS-SOLVED (MG/L AS F) | SILICA, DIS-SOLVED (MG/L AS SIO2) | SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L) | SOLIDS, DIS-SOLVED (TONS PER DAY) | RESIDUE TOTAL AT 105 DEG. C, SUS-PENDED (MG/L) | NITRO-GEN, NITRATE TOTAL (MG/L AS N) | NITRO-GEN, NITRITE TOTAL (MG/L AS N) | NITRO-GEN, NO2+NO3 TOTAL (MG/L AS N) | NITRO-GEN, AMMONIA TOTAL (MG/L AS N) | NITRO-GEN, ORGANIC TOTAL (MG/L AS N) |
|----------|-----------------------------------|-----------------------------------|---|-----------------------------------|--|--------------------------------------|--------------------------------------|--------------------------------------|--------------------------------------|--------------------------------------|
| OCT 1992 | | | | | | | | | | |
| 20... | 0.20 | 40 | 170 | 3.24 | 3 | 0.390 | 0.010 | 0.400 | 0.060 | 0.54 |
| DEC | | | | | | | | | | |
| 21... | -- | -- | -- | -- | 2 | 0.390 | 0.010 | 0.400 | 0.020 | 0.68 |
| MAR 1993 | | | | | | | | | | |
| 03... | -- | -- | -- | -- | 10 | 0.190 | 0.010 | 0.200 | 0.030 | 0.37 |
| APR | | | | | | | | | | |
| 28... | 0.10 | 40 | 179 | 4.19 | 7 | 0.090 | 0.010 | 0.100 | 0.030 | 0.57 |
| JUN | | | | | | | | | | |
| 07... | -- | -- | -- | -- | 5 | 0.690 | 0.010 | 0.700 | 0.070 | 0.13 |
| AUG | | | | | | | | | | |
| 11... | 0.10 | 36 | 154 | 3.0 | 19 | 0.190 | 0.010 | 0.200 | 0.010 | 0.39 |

K = non-ideal count

RIO CHICO BASIN

50091800 RIO CHICO AT PROVIDENCIA, PR

WATER-QUALITY RECORDS

LOCATION.--Lat 17°59'16", long 66°00'18", at flat low bridge 200 ft (61 m) south of Highway 3, 0.5 mi (0.8 km) above mouth, and 1.5 mi (2.4 km) southeast of Patillas plaza.

DRAINAGE AREA.--4.9 mi² (12.8 km²).

PERIOD OF RECORD.--Water years 1979 to current year.

WATER-QUALITY DATA, WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993

| DATE | TIME | DIS-CHARGE, INST. CUBIC FEET PER SECOND | SPE-CIFIC CON-DUCT-ANCE (US/CM) | PH WATER WHOLE FIELD (STAND-ARD UNITS) | TEMPER-ATURE WATER (DEG C) | TUR-BID-ITY (NTU) | OXYGEN, DIS-SOLVED (MG/L) | OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION) | OXYGEN DEMAND, CHEM-ICAL (HIGH LEVEL) (MG/L) | COLI-FORM, FECAL, 0.45 UM-MF (COLS./100 ML) | STREP-TOCOCCI, FECAL, (COLS. PER 100 ML) |
|-----------|------|---|---------------------------------|--|----------------------------|-------------------|---------------------------|---|--|---|--|
| OCT 1992 | | | | | | | | | | | |
| 20... | 1120 | 0.67 | 418 | 7.6 | 27.5 | 2.2 | 7.3 | 92 | <10 | K1500 | 590 |
| DEC 18... | 1135 | 2.2 | 382 | 7.5 | 24.2 | 1.8 | 7.0 | 89 | 45 | K1300 | 840 |
| FEB 1993 | | | | | | | | | | | |
| 25... | 1125 | 1.2 | 440 | 7.5 | 25.5 | 7.7 | 7.8 | 98 | 61 | 110 | 130 |
| APR 28... | 1145 | 1.5 | 510 | 6.3 | 32.5 | 5.7 | 6.7 | 88 | 55 | K190 | K10 |
| MAY 28... | 1200 | 5.4 | 307 | 7.6 | 28.5 | 15 | 7.1 | 90 | 48 | 3500 | 4100 |
| AUG 11... | 1130 | 4.3 | 344 | 6.9 | 28.5 | 3.6 | 6.9 | 83 | 24 | 24000 | 370 |

| DATE | HARD-NESS TOTAL (MG/L AS CACO3) | HARD-NESS NONCARB WH WAT TOT FLD (MG/L AS CACO3) | CALCIUM DIS-SOLVED (MG/L AS CA) | MAGNE-SIUM, DIS-SOLVED (MG/L AS MG) | SODIUM, DIS-SOLVED (MG/L AS NA) | SODIUM AD-SORP-TION RATIO | POTAS-SIUM, DIS-SOLVED (MG/L AS K) | ALKA-LINITY WAT WH TOT FET FIELD (MG/L AS CACO3) | SULFIDE TOTAL (MG/L AS S) | SULFATE DIS-SOLVED (MG/L AS SO4) | CHLO-RIDE, DIS-SOLVED (MG/L AS CL) |
|-----------|---------------------------------|--|---------------------------------|-------------------------------------|---------------------------------|---------------------------|------------------------------------|--|---------------------------|----------------------------------|------------------------------------|
| OCT 1992 | | | | | | | | | | | |
| 20... | 95 | 1 | 22 | 11 | 31 | 1 | 2.6 | 110 | <0.5 | 16 | 27 |
| DEC 18... | -- | -- | -- | -- | -- | -- | -- | 120 | -- | -- | -- |
| FEB 1993 | | | | | | | | | | | |
| 25... | -- | -- | -- | -- | -- | -- | -- | 130 | -- | -- | -- |
| APR 28... | 97 | 0 | 28 | 6.5 | 51 | 2 | 8.9 | 34 | <0.5 | 43 | 61 |
| MAY 28... | -- | -- | -- | -- | -- | -- | -- | 74 | -- | -- | -- |
| AUG 11... | 100 | 1 | 25 | 10 | 36 | 2 | 2.8 | 93 | -- | 19 | 28 |

| DATE | FLUO-RIDE, DIS-SOLVED (MG/L AS F) | SILICA, DIS-SOLVED (MG/L AS SIO2) | SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L) | SOLIDS, DIS-SOLVED (TONS PER DAY) | RESIDUE AT 105 DEG. C, SUS-PENDED (MG/L) | NITRO-GEN, NITRATE TOTAL (MG/L AS N) | NITRO-GEN, NITRITE TOTAL (MG/L AS N) | NITRO-GEN, NO2+NO3 TOTAL (MG/L AS N) | NITRO-GEN, AMMONIA TOTAL (MG/L AS N) | NITRO-GEN, ORGANIC TOTAL (MG/L AS N) |
|-----------|-----------------------------------|-----------------------------------|---|-----------------------------------|--|--------------------------------------|--------------------------------------|--------------------------------------|--------------------------------------|--------------------------------------|
| OCT 1992 | | | | | | | | | | |
| 20... | 0.20 | 31 | 210 | 0.38 | <1 | 3.96 | 0.040 | 4.00 | 0.080 | 0.72 |
| DEC 18... | -- | -- | -- | -- | 11 | 0.490 | 0.010 | 0.500 | 0.130 | 0.47 |
| FEB 1993 | | | | | | | | | | |
| 25... | -- | -- | -- | -- | 11 | 0.390 | 0.010 | 0.400 | 2.00 | 0.60 |
| APR 28... | 0.10 | 24 | 243 | 1.02 | 15 | 0.180 | 0.020 | 0.200 | 4.20 | 1.3 |
| MAY 28... | -- | -- | -- | -- | 65 | 0.090 | 0.010 | 0.100 | 1.90 | 0.30 |
| AUG 11... | 0.20 | 30 | 207 | 2.40 | 9 | 0.070 | 0.030 | 0.100 | 1.90 | 0.40 |

K = non-ideal count

50091800 RIO CHICO AT PROVIDENCIA, PR--Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993

| DATE | NITRO- GEN, AM- MONIA + ORGANIC TOTAL (MG/L AS N) | NITRO- GEN, TOTAL (MG/L AS N) | NITRO- GEN, TOTAL (MG/L AS NO3) | PHOS- PHORUS TOTAL (MG/L AS P) | ARSENIC TOTAL (UG/L AS AS) | BARIUM, TOTAL RECOV- ERABLE (UG/L AS BA) | BORON, TOTAL RECOV- ERABLE (UG/L AS B) | CADMIUM TOTAL RECOV- ERABLE (UG/L AS CD) | CHRO- MIUM, TOTAL RECOV- ERABLE (UG/L AS CR) | COPPER, TOTAL RECOV- ERABLE (UG/L AS CU) |
|-----------|---|---|---|--|-------------------------------------|---|---|---|--|---|
| OCT 1992 | | | | | | | | | | |
| 20... | 0.80 | 4.8 | 21 | 2.50 | <1 | 200 | <10 | <1 | <1 | 30 |
| DEC 18... | 0.60 | 1.1 | 9.7 | 0.250 | -- | -- | -- | -- | -- | -- |
| FEB 1993 | | | | | | | | | | |
| 25... | 2.6 | 2.1 | 25 | 2.00 | -- | -- | -- | -- | -- | -- |
| APR 28... | 5.5 | 2.9 | 13 | 4.40 | <1 | <100 | 130 | <1 | <1 | 10 |
| MAY 28... | 4.1 | 0.60 | 19 | 0.980 | -- | -- | -- | -- | -- | -- |
| AUG 11... | 2.3 | 0.70 | 28 | 0.920 | -- | -- | -- | -- | -- | -- |

[illegible]

RIO GRANDE DE PATILLAS BASIN

50092000 RIO GRANDE DE PATILLAS NEAR PATILLAS, PR

LOCATION.--Lat 18°02'04", long 66°01'58", Hydrologic Unit 21010004, on left bank, at foot bridge, off Highway 184, 1.2 mi (1.9 km) upstream from Lago Patillas Dam and 2.2 mi (3.5 km) northwest of Patillas.

DRAINAGE AREA.--18.3 mi² (47.4 km²).

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--February 1959 to October 1965 (annual low-flow and occasional measurements only), January 1966 to current year.

GAGE.--Water-stage recorder and crest-stage gage. Elevation of gage is 235 ft (72 m), from topographic map.

REMARKS.--Records poor. Gage-height and precipitation satellite telemetry at station.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1991 TO SEPTEMBER 1992
DAILY MEAN VALUES

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|-------|------|------|------|-------|------|-------|-------|--------|------|------|------|------|
| 1 | 59 | 13 | 65 | 34 | e23 | e18 | 22 | 8.3 | 121 | 29 | e25 | e44 |
| 2 | 149 | 13 | 65 | 23 | e21 | e21 | 14 | 22 | 57 | 28 | e27 | e38 |
| 3 | 67 | 13 | 71 | 19 | e21 | e20 | 12 | 8.6 | 56 | 26 | e25 | e56 |
| 4 | 44 | 14 | 95 | 17 | e24 | e24 | 11 | 6.7 | 172 | 26 | e27 | e35 |
| 5 | 37 | 20 | 60 | e2100 | e24 | e22 | 11 | 6.1 | 73 | 36 | e300 | e31 |
| 6 | 34 | 22 | 49 | e600 | e50 | e25 | 10 | 29 | 101 | 26 | e88 | e38 |
| 7 | 31 | 281 | 43 | e130 | e30 | e47 | 15 | 32 | 63 | 24 | e41 | e34 |
| 8 | 31 | 618 | 39 | e88 | e27 | e44 | 13 | 12 | 75 | 31 | e35 | e60 |
| 9 | 47 | 311 | 35 | e68 | e25 | e21 | 12 | 9.5 | 62 | 27 | e62 | e120 |
| 10 | 38 | 174 | 32 | e70 | e28 | e20 | 11 | 9.8 | 198 | 24 | e41 | e50 |
| 11 | 33 | 101 | 29 | e58 | e26 | e19 | 12 | 11 | 134 | 52 | e37 | 30 |
| 12 | 32 | 74 | 32 | e49 | e26 | e19 | 116 | 9.8 | 372 | e35 | e31 | 27 |
| 13 | 28 | 59 | 28 | e44 | e23 | e19 | 37 | 9.3 | 322 | e26 | e29 | 26 |
| 14 | 26 | 46 | e27 | e41 | e30 | e19 | 106 | 33 | 180 | e31 | e90 | 24 |
| 15 | 27 | 39 | e25 | e47 | e32 | e22 | 23 | 49 | 116 | e29 | e41 | 23 |
| 16 | 24 | 38 | 26 | e38 | e27 | e16 | 9.2 | 235 | 116 | e24 | e39 | 27 |
| 17 | 25 | 31 | 24 | e36 | e24 | e23 | 7.4 | 58 | 113 | e62 | e35 | 61 |
| 18 | 20 | 25 | 22 | e33 | e26 | e27 | 68 | 35 | 79 | e30 | e31 | 78 |
| 19 | 18 | 22 | 21 | e32 | e24 | e19 | 94 | 30 | 64 | e37 | e31 | 128 |
| 20 | 17 | 21 | 28 | e32 | e24 | e19 | 90 | 27 | 56 | e39 | e33 | e50 |
| 21 | e17 | 23 | 36 | e29 | e21 | e18 | 21 | 25 | 267 | e41 | e29 | e40 |
| 22 | e20 | 88 | 22 | e28 | e24 | e19 | 11 | 24 | 91 | e200 | e27 | e35 |
| 23 | e21 | 52 | 20 | e30 | e24 | e14 | 9.7 | 316 | 70 | e37 | e31 | e31 |
| 24 | e16 | 257 | 19 | e30 | e26 | e15 | 9.6 | 382 | 57 | e31 | e33 | e29 |
| 25 | e15 | 106 | 19 | e30 | e24 | e15 | 9.7 | 300 | 48 | e100 | e29 | e27 |
| 26 | 14 | 60 | 18 | e30 | e32 | e12 | 9.5 | 609 | 43 | e33 | e33 | e25 |
| 27 | 15 | 224 | 18 | e28 | e30 | e11 | 9.0 | 166 | 40 | e28 | e31 | e23 |
| 28 | 15 | 181 | 18 | e28 | e27 | e11 | 8.8 | 87 | 35 | e24 | e37 | e23 |
| 29 | 15 | 117 | 17 | e23 | e26 | e9.6 | 8.5 | 60 | 32 | e20 | e34 | e23 |
| 30 | 16 | 77 | 25 | e23 | --- | e9.2 | 8.5 | 124 | 31 | e19 | e34 | e25 |
| 31 | 14 | --- | 38 | e23 | --- | 16 | --- | 60 | --- | e19 | e46 | --- |
| TOTAL | 965 | 3120 | 1066 | 3861 | 769 | 613.8 | 798.9 | 2794.1 | 3244 | 1194 | 1432 | 1261 |
| MEAN | 31.1 | 104 | 34.4 | 125 | 26.5 | 19.8 | 26.6 | 90.1 | 108 | 38.5 | 46.2 | 42.0 |
| MAX | 149 | 618 | 95 | 2100 | 50 | 47 | 116 | 609 | 372 | 200 | 300 | 128 |
| MIN | 14 | 13 | 17 | 17 | 21 | 9.2 | 7.4 | 6.1 | 31 | 19 | 25 | 23 |
| AC-FT | 1910 | 6190 | 2110 | 7660 | 1530 | 1220 | 1580 | 5540 | 6430 | 2370 | 2840 | 2500 |
| CFSM | 1.70 | 5.68 | 1.88 | 6.81 | 1.45 | 1.08 | 1.46 | 4.93 | 5.91 | 2.10 | 2.52 | 2.30 |
| IN. | 1.96 | 6.34 | 2.17 | 7.85 | 1.56 | 1.25 | 1.62 | 5.68 | 6.59 | 2.43 | 2.91 | 2.56 |

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1966 - 1992, BY WATER YEAR (WY)

| | MEAN | 107 | 98.3 | 54.3 | 34.9 | 28.4 | 24.4 | 22.6 | 55.6 | 67.9 | 65.0 | 73.4 | 86.1 |
|------|------|------|------|------|------|------|------|------|------|------|------|------|------|
| MAX | 593 | 393 | 152 | 125 | 94.6 | 43.8 | 43.4 | 172 | 200 | 164 | 231 | 314 | |
| (WY) | 1971 | 1978 | 1971 | 1992 | 1982 | 1972 | 1976 | 1969 | 1979 | 1979 | 1979 | 1979 | |
| MIN | 14.4 | 16.1 | 8.63 | 14.0 | 7.09 | 6.74 | 9.98 | 10.3 | 13.1 | 14.1 | 23.0 | 12.1 | |
| (WY) | 1968 | 1968 | 1968 | 1973 | 1973 | 1968 | 1968 | 1974 | 1974 | 1974 | 1991 | 1967 | |

| SUMMARY STATISTICS | FOR 1991 CALENDAR YEAR | FOR 1992 WATER YEAR | WATER YEARS 1966 - 1992 |
|--------------------------|------------------------|---------------------|-------------------------|
| ANNUAL TOTAL | 14021 | 21118.8 | |
| ANNUAL MEAN | 38.4 | 57.7 | 59.2 |
| HIGHEST ANNUAL MEAN | | | 117 |
| LOWEST ANNUAL MEAN | | | 27.7 |
| HIGHEST DAILY MEAN | 618 | Nov 8 | 2100 Jan 5 |
| LOWEST DAILY MEAN | 11 | Sep 1 | 6.1 May 5 |
| ANNUAL SEVEN-DAY MINIMUM | 13 | Aug 8 | 8.9 Apr 25 |
| INSTANTANEOUS PEAK FLOW | | 30900 | Jan 5 |
| INSTANTANEOUS LOW FLOW | | | 4.6 |
| ANNUAL RUNOFF (AC-FT) | 27810 | 41890 | 42900 |
| ANNUAL RUNOFF (CFSM) | 2.10 | 3.15 | 3.24 |
| ANNUAL RUNOFF (INCHES) | 28.50 | 42.93 | 43.97 |
| 10 PERCENT EXCEEDS | 66 | 106 | 100 |
| 50 PERCENT EXCEEDS | 21 | 29 | 28 |
| 90 PERCENT EXCEEDS | 14 | 13 | 12 |

e Estimated

RIO GRANDE DE PATILLAS BASIN

50092000 RIO GRANDE DE PATILLAS NEAR PATILLAS, PR--Continued

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993
DAILY MEAN VALUES

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|-------|------|------|------|------|------|------|------|------|------|-------|------|------|
| 1 | e38 | 24 | 101 | 68 | 34 | 17 | 14 | 84 | 15 | 12 | e54 | e42 |
| 2 | e33 | 23 | 65 | 39 | 30 | 18 | 13 | 143 | 18 | 17 | e48 | e50 |
| 3 | e32 | 24 | 94 | 30 | 28 | 17 | 13 | 33 | 17 | 47 | e43 | e50 |
| 4 | e30 | 78 | 54 | 26 | 26 | 17 | 12 | 19 | 14 | 26 | e39 | e32 |
| 5 | e34 | 39 | 41 | 26 | 25 | 17 | 12 | 31 | 12 | 23 | e38 | e31 |
| 6 | e46 | 61 | 36 | 32 | 24 | 16 | 12 | 27 | 12 | 24 | e36 | e27 |
| 7 | e30 | 59 | 31 | 45 | 24 | 16 | 12 | 15 | 12 | 29 | e34 | e27 |
| 8 | e28 | 36 | 28 | 37 | 23 | 16 | 13 | 14 | 13 | 31 | e34 | e45 |
| 9 | e27 | 32 | 27 | 31 | 23 | 16 | 19 | 27 | 12 | 20 | e32 | e43 |
| 10 | e26 | 29 | 25 | 30 | 22 | 16 | 16 | 20 | 20 | 17 | e36 | e110 |
| 11 | e29 | 27 | 22 | 30 | 22 | 15 | 13 | 13 | 18 | e1700 | e66 | e44 |
| 12 | e27 | 26 | 21 | 30 | 33 | 15 | 13 | 12 | 14 | e200 | e36 | e32 |
| 13 | e24 | 26 | 25 | 28 | 28 | 16 | 25 | 11 | 14 | e110 | e32 | e31 |
| 14 | 24 | 25 | 23 | 28 | 23 | 16 | 20 | 288 | 37 | e90 | e30 | e27 |
| 15 | 24 | 28 | 21 | 26 | 22 | 16 | 14 | 49 | 141 | e78 | e40 | e25 |
| 16 | 24 | 29 | 19 | 26 | 21 | 16 | 14 | 27 | 43 | e340 | e540 | e84 |
| 17 | 25 | 30 | 19 | 26 | 21 | 16 | 38 | 23 | 19 | e84 | e90 | e32 |
| 18 | 25 | 47 | 18 | 26 | 20 | 16 | 15 | 27 | 125 | e68 | e54 | e100 |
| 19 | 26 | 48 | 18 | 27 | 23 | 19 | 16 | 20 | 605 | e84 | e45 | e30 |
| 20 | 45 | 106 | 17 | 26 | 21 | 18 | 16 | 21 | 256 | e105 | e40 | e72 |
| 21 | 31 | 53 | 17 | 26 | 20 | 14 | 15 | 23 | 56 | e96 | e36 | e29 |
| 22 | 34 | 63 | 18 | 43 | 19 | 13 | 14 | 21 | 149 | e261 | e90 | e32 |
| 23 | 28 | 47 | 17 | 38 | 19 | 13 | 14 | 18 | 35 | e287 | e250 | e580 |
| 24 | 35 | 63 | 18 | 28 | 19 | 13 | 14 | 17 | 42 | e337 | e120 | e70 |
| 25 | 52 | 36 | 17 | 55 | 19 | 14 | 13 | 20 | 22 | e150 | e58 | e36 |
| 26 | 34 | 29 | 43 | 32 | 19 | 14 | 14 | 22 | 17 | e108 | e43 | e29 |
| 27 | 27 | 80 | 24 | 41 | 18 | 13 | 15 | 17 | 15 | e94 | e41 | e26 |
| 28 | 25 | 130 | 19 | 49 | 18 | 13 | 14 | 16 | 13 | e76 | e41 | e34 |
| 29 | 27 | 71 | 27 | 152 | --- | 13 | 82 | 15 | 13 | e67 | e36 | e74 |
| 30 | 26 | 129 | 27 | 57 | --- | 13 | 29 | 14 | 22 | e61 | e34 | e107 |
| 31 | 26 | --- | 25 | 40 | --- | 12 | --- | 13 | --- | e58 | e58 | --- |
| TOTAL | 942 | 1498 | 957 | 1198 | 644 | 474 | 544 | 1100 | 1801 | 4700 | 2174 | 1951 |
| MEAN | 30.4 | 49.9 | 30.9 | 38.6 | 23.0 | 15.3 | 18.1 | 35.5 | 60.0 | 152 | 70.1 | 65.0 |
| MAX | 52 | 130 | 101 | 152 | 34 | 19 | 82 | 288 | 605 | 1700 | 540 | 580 |
| MIN | 24 | 23 | 17 | 26 | 18 | 12 | 12 | 11 | 12 | 12 | 30 | 25 |
| AC-FT | 1870 | 2970 | 1900 | 2380 | 1280 | 940 | 1080 | 2180 | 3570 | 9320 | 4310 | 3870 |
| CFSM | 1.66 | 2.73 | 1.69 | 2.11 | 1.26 | .84 | .99 | 1.94 | 3.28 | 8.28 | 3.83 | 3.55 |
| IN. | 1.91 | 3.05 | 1.95 | 2.44 | 1.31 | .96 | 1.11 | 2.24 | 3.66 | 9.55 | 4.42 | 3.97 |

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1966 - 1993, BY WATER YEAR (WY)

| | 1966 | 1967 | 1968 | 1969 | 1970 | 1971 | 1972 | 1973 | 1974 | 1975 | 1976 | 1977 | 1978 | 1979 | 1980 | 1981 | 1982 | 1983 | 1984 | 1985 | 1986 | 1987 | 1988 | 1989 | 1990 | 1991 | 1992 | 1993 |
|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|
| MEAN | 104 | 96.5 | 53.4 | 35.0 | 28.2 | 24.1 | 22.4 | 54.8 | 67.7 | 68.1 | 73.2 | 85.4 | | | | | | | | | | | | | | | | |
| MAX | 593 | 393 | 152 | 125 | 94.6 | 43.8 | 43.4 | 172 | 200 | 164 | 231 | 314 | | | | | | | | | | | | | | | | |
| (WY) | 1971 | 1978 | 1971 | 1992 | 1982 | 1972 | 1976 | 1969 | 1979 | 1979 | 1979 | 1979 | | | | | | | | | | | | | | | | |
| MIN | 14.4 | 16.1 | 8.63 | 14.0 | 7.09 | 6.74 | 9.98 | 10.3 | 13.1 | 14.1 | 23.0 | 12.1 | | | | | | | | | | | | | | | | |
| (WY) | 1968 | 1968 | 1968 | 1973 | 1973 | 1968 | 1968 | 1974 | 1974 | 1974 | 1991 | 1967 | | | | | | | | | | | | | | | | |

SUMMARY STATISTICS

FOR 1992 CALENDAR YEAR

FOR 1993 WATER YEAR

WATER YEARS 1966 - 1993

| | | | |
|--------------------------|---------|--------|--------------|
| ANNUAL TOTAL | 19364.8 | 17983 | |
| ANNUAL MEAN | 52.9 | 49.3 | 58.9 |
| HIGHEST ANNUAL MEAN | | | 117 |
| LOWEST ANNUAL MEAN | | | 27.7 |
| HIGHEST DAILY MEAN | 2100 | Jan 5 | 1700 Jul 11 |
| LOWEST DAILY MEAN | 6.1 | May 5 | 11 May 13 |
| ANNUAL SEVEN-DAY MINIMUM | 8.9 | Apr 25 | 12 Apr 2 |
| INSTANTANEOUS PEAK FLOW | | | 17400 Jul 11 |
| INSTANTANEOUS PEAK STAGE | | | 17.49 Jul 11 |
| INSTANTANEOUS LOW FLOW | | | 4.6 |
| ANNUAL RUNOFF (AC-FT) | 38410 | 35670 | 42640 |
| ANNUAL RUNOFF (CFSM) | 2.89 | 2.69 | 3.22 |
| ANNUAL RUNOFF (INCHES) | 39.36 | 36.56 | 43.70 |
| 10 PERCENT EXCEEDS | 90 | 84 | 100 |
| 50 PERCENT EXCEEDS | 29 | 27 | 28 |
| 90 PERCENT EXCEEDS | 15 | 14 | 12 |

e Estimated

RIO GRANDE DE PATILLAS BASIN

50092000 RIO GRANDE DE PATILLAS NEAR PATILLAS, PR
(National stream-quality accounting network station)

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Water years 1960 to current year.

WATER-QUALITY DATA, WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993

| DATE | TIME | DIS- CHARGE, INST. CUBIC FEET PER SECOND | SPE- CIFIC CON- DUCT- ANCE (US/CM) | PH WATER WHOLE FIELD (STAND- ARD UNITS) | TEMPER- ATURE WATER (DEG C) | TUR- BID- ITY (NTU) | OXYGEN, DIS- SOLVED (MG/L) | OXYGEN, DIS- SOLVED (PER- CENT SATUR- ATION) | COLI- FORM, FECAL, 0.7 UM-MF (COLS./ 100 ML) | STREP- TOCOCCI FECAL, KF AGAR (COLS. PER 100 ML) | HARD- NESS TOTAL (MG/L AS CACO3) |
|----------|------|--|---|---|--------------------------------------|------------------------------|-------------------------------------|--|--|--|---|
| OCT 1992 | | | | | | | | | | | |
| 13... | 0945 | 25 | 176 | 7.3 | 26.0 | 0.70 | 6.6 | 91 | 260 | 3000 | 54 |
| JAN 1993 | | | | | | | | | | | |
| 14... | 0925 | 27 | 156 | 6.4 | 23.0 | 1.2 | 8.6 | 108 | 560 | 430 | 49 |
| APR | | | | | | | | | | | |
| 06... | 0930 | 13 | 192 | 7.7 | 24.0 | 1.8 | 8.4 | 106 | 510 | 390 | 59 |
| JUL | | | | | | | | | | | |
| 23... | 1000 | 379 | 90 | 6.5 | 24.0 | 43 | 8.1 | 102 | 4700 | 12000 | 48 |

| DATE | HARD- NESS NONCARB WH WAT TOT FLD MG/L AS CACO3 | CALCIUM DIS- SOLVED (MG/L AS CA) | MAGNE- SIUM, DIS- SOLVED (MG/L AS MG) | SODIUM, DIS- SOLVED (MG/L AS NA) | SODIUM AD- SORP- TION RATIO | POTAS- SIUM, DIS- SOLVED (MG/L AS K) | ALKA- LINITY WAT WH TOT FET FIELD MG/L AS CACO3 | SULFATE DIS- SOLVED (MG/L AS SO4) | CHLO- RIDE, DIS- SOLVED (MG/L AS CL) | FLUO- RIDE, DIS- SOLVED (MG/L AS F) | SILICA, DIS- SOLVED (MG/L AS SiO2) |
|----------|---|--|--|--|---|---|---|---|---|--|---|
| OCT 1992 | | | | | | | | | | | |
| 13... | 1 | 13 | 5.3 | 14 | 0.8 | 0.60 | 60 | 12 | 12 | 0.10 | 24 |
| JAN 1993 | | | | | | | | | | | |
| 14... | 0 | 12 | 4.7 | 13 | 0.8 | 0.60 | 51 | 9.7 | 12 | <0.10 | 21 |
| APR | | | | | | | | | | | |
| 06... | 2 | 14 | 5.8 | 15 | 0.9 | 0.60 | 80 | 12 | 12 | 0.10 | 23 |
| JUL | | | | | | | | | | | |
| 23... | 1 | 11 | 4.9 | 14 | 0.9 | 0.60 | 23 | 11 | 9.7 | 0.20 | 24 |

| DATE | SOLIDS, RESIDUE AT 180 DEG. C DIS- SOLVED (MG/L) | SOLIDS, SUM OF CONSTITU- ENTS, DIS- SOLVED (MG/L) | SOLIDS, DIS- SOLVED (TONS PER DAY) | NITRO- GEN, NO2+NO3 DIS- SOLVED (MG/L AS N) | NITRO- GEN, AMMONIA DIS- SOLVED (MG/L AS N) | NITRO- GEN, AMMONIA DIS- SOLVED (MG/L AS NH4) | NITRO- GEN,AM- MONIA + ORGANIC TOTAL (MG/L AS N) | PHOS- PHORUS TOTAL (MG/L AS P) | PHOS- PHORUS DIS- SOLVED (MG/L AS P) | PHOS- PHORUS ORTHO, DIS- SOLVED (MG/L AS P) | PHOS- PHATE, ORTHO, DIS- SOLVED (MG/L AS PO4) |
|----------|--|---|---|---|---|---|--|--|---|---|---|
| OCT 1992 | | | | | | | | | | | |
| 13... | 115 | 116 | 7.83 | 0.066 | 0.010 | 0.01 | <0.20 | 0.020 | 0.030 | <0.010 | -- |
| JAN 1993 | | | | | | | | | | | |
| 14... | 95 | 105 | 7.65 | 0.130 | 0.020 | 0.03 | <0.20 | 0.030 | 0.010 | <0.010 | -- |
| APR | | | | | | | | | | | |
| 06... | 113 | 121 | 4.25 | 0.061 | 0.020 | 0.03 | <0.20 | 0.020 | 0.020 | 0.010 | 0.03 |
| JUL | | | | | | | | | | | |
| 23... | 105 | 120 | 123 | 0.230 | 0.030 | 0.04 | 0.40 | 0.050 | 0.010 | 0.010 | 0.03 |

| DATE | ALUM- INUM, DIS- SOLVED (UG/L AS AL) | ARSENIC DIS- SOLVED (UG/L AS AS) | BARIUM, DIS- SOLVED (UG/L AS BA) | BERYL- LIUM, DIS- SOLVED (UG/L AS BR) | CADMIUM DIS- SOLVED (UG/L AS CD) | CHRO- MIUM, DIS- SOLVED (UG/L AS CR) | COBALT, DIS- SOLVED (UG/L AS CO) | COPPER, DIS- SOLVED (UG/L AS CU) | IRON, DIS- SOLVED (UG/L AS FE) | LEAD, DIS- SOLVED (UG/L AS PB) | LITHIUM DIS- SOLVED (UG/L AS LI) |
|----------|---|--|--|--|--|---|--|--|--|--|--|
| OCT 1992 | | | | | | | | | | | |
| 13... | <10 | 1 | 14 | <0.5 | <1 | <1 | <3 | <1 | 8 | <1 | <4 |
| JAN 1993 | | | | | | | | | | | |
| 14... | 30 | <1 | 13 | <0.5 | <1 | <1 | <3 | 1 | 17 | <1 | <4 |
| APR | | | | | | | | | | | |
| 06... | <10 | <1 | 15 | <0.5 | <1 | <1 | <3 | <1 | 10 | <1 | <4 |
| JUL | | | | | | | | | | | |
| 23... | 20 | <1 | 17 | <0.5 | <1 | <1 | <3 | <1 | 18 | <1 | <4 |

K = non-ideal count

RIO GRANDE DE PATILLAS BASIN

50092000 RIO GRANDE DE PATILLAS NEAR PATILLAS, PR--Continued
(National stream-quality accounting network station)

WATER-QUALITY DATA, WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993

| DATE | MANGANESE, DIS- SOLVED (UG/L AS MN) | MERCURY DIS- SOLVED (UG/L AS HG) | MOLYB- DENUM, DIS- SOLVED (UG/L AS MO) | NICKEL, DIS- SOLVED (UG/L AS NI) | SELE- NIUM, DIS- SOLVED (UG/L AS SE) | SILVER, DIS- SOLVED (UG/L AS AG) | STRON- TIUM, DIS- SOLVED (UG/L AS SR) | VANA- DIUM, DIS- SOLVED (UG/L AS V) | ZINC, DIS- SOLVED (UG/L AS ZN) |
|----------|---|--|---|--|---|--|--|--|--|
| OCT 1992 | | | | | | | | | |
| 13... | 4 | 0.2 | <10 | 1 | <1 | <1.0 | 46 | <6 | 7 |
| JAN 1993 | | | | | | | | | |
| 14... | 9 | <0.1 | <10 | <1 | <1 | <1.0 | 42 | <6 | 4 |
| APR | | | | | | | | | |
| 06... | 13 | <0.1 | <10 | <1 | <1 | <1.0 | 49 | <6 | 2 |
| JUL | | | | | | | | | |
| 23... | 5 | <0.1 | <10 | <1 | <1 | <1.0 | 38 | <6 | 7 |

PARTICLE-SIZE DISTRIBUTION OF SUSPENDED SEDIMENT

| DATE | TIME | STREAM- FLOW, INSTAN- TANEOUS (CFS) | SEDI- MENT, SUS- PENDE (MG/L) | SEDI- MENT, DIS- CHARGE, SUS- PENDE (T/DAY) | SED. SUSP. SIEVE DIAM. PERCENT FINER THAN .062 MM |
|----------|------|---|---|---|--|
| OCT 1992 | | | | | |
| 13... | 0945 | 25 | 17 | 1.13 | 56 |
| JAN 1993 | | | | | |
| 14... | 0925 | 27 | 8.5 | 0.62 | 79 |
| APR | | | | | |
| 06... | 0930 | 13 | 19 | 0.66 | 89 |
| JUL | | | | | |
| 23... | 1000 | 379 | 109 | 112 | 87 |

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INTENTIONALLY

RIO SALINAS BASIN

50100200 RIO LAPA NEAR RABO DEL BUEY, PR

LOCATION.--Lat 18°03'36", long 66°14'28", Hydrologic Unit 21010004, on left bank, at bridge on Highway 1, Km 9.7, 1.5 mi (2.4 km) north of Rabo del Buey, and 4.4 mi (7.1 km) northeast of Salinas Plaza.

DRAINAGE AREA.--9.92 mi² (25.69 km²).

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--1953-63 (annual low-flow measurements only), September 1988 to current year.

GAGE.--Water-stage recorder and crest-stage gage. Elevation of gage is 394 ft (120 m), from topographic map.

REMARKS.--Records fair except those for estimated daily discharges, which are poor.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993
DAILY MEAN VALUES

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|-------|------|------|------|-------|-------|-------|-------|-------|--------|-------|-------|------|
| 1 | 1.5 | 1.8 | 4.2 | 1.3 | 1.2 | .90 | .57 | e2.5 | .88 | 2.0 | 2.9 | e1.8 |
| 2 | 1.6 | 1.7 | 2.9 | 1.3 | 1.1 | .86 | .54 | e3.5 | .87 | 2.0 | 2.8 | e1.7 |
| 3 | 1.6 | 1.6 | 2.6 | 1.3 | 1.0 | .83 | .52 | e1.6 | 1.1 | 2.0 | 2.7 | e1.8 |
| 4 | 1.5 | 1.8 | 2.3 | 1.3 | .99 | .88 | .53 | e1.0 | .84 | 2.0 | 2.7 | 4.9 |
| 5 | 1.4 | 1.8 | 2.1 | 1.2 | .95 | .88 | .52 | e1.1 | .77 | 1.9 | 2.6 | 1.6 |
| 6 | 1.7 | 1.7 | 1.9 | 1.2 | .94 | .88 | .46 | e.94 | .74 | 1.9 | 2.7 | 1.5 |
| 7 | 1.9 | 1.8 | 1.8 | 1.2 | .94 | .88 | .47 | e.88 | .72 | 2.0 | 2.7 | 1.4 |
| 8 | 4.6 | 1.8 | 1.8 | 1.2 | .92 | .88 | .51 | e.94 | .71 | 1.9 | 2.6 | 1.3 |
| 9 | 2.8 | 1.6 | 1.7 | 1.3 | .88 | .87 | .50 | e1.3 | .72 | 1.9 | 2.7 | 1.2 |
| 10 | 2.0 | 1.6 | 1.6 | 1.3 | .86 | .78 | .51 | e1.0 | .73 | 1.9 | 2.6 | 1.1 |
| 11 | 2.1 | 1.6 | 1.6 | 1.2 | .83 | .81 | .59 | e.80 | .65 | 129 | 2.6 | 1.1 |
| 12 | 1.9 | 1.6 | 1.6 | 1.2 | .91 | .83 | 1.0 | e.72 | .60 | 17 | 2.5 | 1.1 |
| 13 | 2.0 | 1.9 | 2.4 | 1.2 | .97 | .83 | 1.2 | e4.6 | 1.6 | 5.2 | 2.8 | 1.1 |
| 14 | 1.7 | 1.7 | 2.0 | 1.1 | 1.0 | .83 | 1.6 | e3.1 | 1.8 | 3.9 | 2.7 | 1.2 |
| 15 | 1.6 | 1.6 | 1.9 | 1.1 | 1.1 | .84 | e2.0 | e2.0 | 49 | 3.4 | 2.8 | 1.3 |
| 16 | 1.6 | 1.5 | 1.8 | 1.1 | 1.1 | .88 | e1.0 | e1.2 | 10 | 3.2 | 44 | 1.2 |
| 17 | 1.8 | 1.4 | 1.6 | 1.0 | 1.1 | .88 | e.62 | e1.9 | 4.1 | 2.9 | 4.9 | 1.9 |
| 18 | 2.0 | 1.4 | 1.5 | .95 | 1.1 | .88 | e6.2 | e1.3 | 3.7 | 2.8 | 3.2 | 1.7 |
| 19 | 5.7 | 1.9 | 1.5 | .88 | 1.0 | .88 | e3.0 | e1.3 | 125 | 2.7 | 2.7 | 1.6 |
| 20 | 3.3 | 2.7 | 1.5 | .88 | .99 | .88 | e1.6 | 1.2 | 70 | 2.6 | 2.5 | 7.8 |
| 21 | 2.3 | 2.8 | 1.5 | .86 | .99 | .86 | e.94 | 1.1 | 10 | 2.5 | 2.4 | 2.1 |
| 22 | 3.6 | 2.0 | 1.5 | .86 | 1.0 | .83 | e.82 | 1.1 | 6.0 | 10 | 2.3 | 1.7 |
| 23 | 2.9 | 2.1 | 1.6 | .88 | 1.1 | .81 | e.70 | 1.7 | 4.1 | 6.2 | 2.7 | 4.5 |
| 24 | 13 | 2.0 | 1.5 | .88 | .99 | .75 | e.70 | 3.5 | 3.5 | 5.7 | 2.6 | 3.6 |
| 25 | 5.7 | 1.9 | 1.4 | .84 | .94 | .69 | e.66 | 4.0 | 3.0 | 4.9 | 2.4 | 4.4 |
| 26 | 3.1 | 1.8 | 1.5 | .81 | .94 | .68 | e.80 | 3.0 | 2.6 | 4.1 | 2.3 | 3.1 |
| 27 | 2.4 | 6.0 | 1.7 | .83 | .91 | .65 | e.94 | 1.7 | 2.4 | 3.7 | e2.1 | 2.7 |
| 28 | 2.0 | 16 | 1.5 | 5.2 | .88 | .63 | e4.0 | 1.3 | 2.2 | 3.5 | e1.9 | 2.8 |
| 29 | 1.9 | 5.4 | 1.4 | 4.4 | --- | .61 | e5.6 | 1.0 | 2.2 | 3.2 | e1.9 | 2.7 |
| 30 | 1.8 | 9.7 | 1.3 | 2.0 | --- | .62 | e2.6 | .86 | 2.1 | 3.0 | e1.8 | 8.0 |
| 31 | 1.7 | --- | 1.3 | 1.4 | --- | .59 | --- | .83 | --- | 2.9 | e2.0 | --- |
| TOTAL | 84.7 | 84.2 | 56.5 | 42.17 | 27.63 | 24.90 | 41.70 | 52.97 | 312.63 | 241.9 | 122.1 | 73.9 |
| MEAN | 2.73 | 2.81 | 1.82 | 1.36 | .99 | .80 | 1.39 | 1.71 | 10.4 | 7.80 | 3.94 | 2.46 |
| MAX | 13 | 16 | 4.2 | 5.2 | 1.2 | .90 | 6.2 | 4.6 | 125 | 129 | 44 | 8.0 |
| MIN | 1.4 | 1.4 | 1.3 | .81 | .83 | .59 | .46 | .72 | .60 | 1.9 | 1.8 | 1.1 |
| AC-FT | 168 | 167 | 112 | 84 | 55 | 49 | 83 | 105 | 620 | 480 | 242 | 147 |
| CFSM | .27 | .28 | .18 | .14 | .10 | .08 | .14 | .17 | 1.04 | .78 | .39 | .25 |
| IN. | .32 | .31 | .21 | .16 | .10 | .09 | .16 | .20 | 1.16 | .90 | .45 | .27 |

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1988 - 1993, BY WATER YEAR (WY)

| | 1988 | 1989 | 1990 | 1991 | 1992 | 1993 |
|------|------|------|------|------|------|------|
| MEAN | 19.2 | 8.01 | 2.36 | 15.1 | 3.59 | 1.16 |
| MAX | 76.1 | 28.4 | 6.09 | 68.8 | 12.4 | 2.08 |
| (WY) | 1991 | 1991 | 1991 | 1992 | 1991 | 1992 |
| MIN | 1.46 | 2.17 | .96 | .56 | .49 | .44 |
| (WY) | 1992 | 1992 | 1992 | 1990 | 1990 | 1990 |

SUMMARY STATISTICS

FOR 1992 CALENDAR YEAR

FOR 1993 WATER YEAR

WATER YEARS 1988 - 1993

| | | | |
|--------------------------|---------|---------|-----------------|
| ANNUAL TOTAL | 4147.63 | 1165.30 | |
| ANNUAL MEAN | 11.3 | 3.19 | 6.40 |
| HIGHEST ANNUAL MEAN | | | 11.2 |
| LOWEST ANNUAL MEAN | | | 3.13 |
| HIGHEST DAILY MEAN | 1080 | Jan 5 | 1080 Jan 5 1992 |
| LOWEST DAILY MEAN | .84 | Sep 18 | .02 Aug 29 1989 |
| ANNUAL SEVEN-DAY MINIMUM | .90 | Sep 13 | .07 Aug 24 1989 |
| INSTANTANEOUS PEAK FLOW | | | 1050 Jul 11 |
| INSTANTANEOUS PEAK STAGE | | | 9.61 Jul 11 |
| INSTANTANEOUS LOW FLOW | | | .44 Apr 6 |
| ANNUAL RUNOFF (AC-FT) | 8230 | 2310 | 4630 |
| ANNUAL RUNOFF (CFSM) | 1.13 | .32 | .64 |
| ANNUAL RUNOFF (INCHES) | 15.43 | 4.33 | 8.69 |
| 10 PERCENT EXCEEDS | 7.8 | 4.1 | 8.4 |
| 50 PERCENT EXCEEDS | 2.1 | 1.6 | 1.4 |
| 90 PERCENT EXCEEDS | 1.4 | .81 | .24 |

e Estimated

RIO SALINAS BASIN

50100450 RIO MAJADA AT LA PLENA, PR

LOCATION.--Lat 18°02'40", long 66°12'27", Hydrologic Unit 21010004, on right bank, upstream side of bridge on Hwy 712, about 0.3 mi (0.5 km) southwest of La Plena.

DRAINAGE AREA.--16.7 mi² (43.3 km²).

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--January 1973 to April 1979 (monthly measurements only), September 1988 to current year.

GAGE.--Water-stage recorder. Elevation of gage is 410 ft (125 m), from topographic map.

REMARKS.--Records fair. Some regulation at low flow upstream from station by local residents for agricultural purposes.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993
DAILY MEAN VALUES

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|-------|-------|-------|-------|-------|------|-------|-------|-------|--------|-------|-------|-------|
| 1 | 4.9 | 3.5 | 16 | 4.1 | 3.3 | 1.3 | .80 | 3.6 | 1.6 | 4.4 | 4.9 | 2.4 |
| 2 | 4.4 | 3.2 | 11 | 3.3 | 2.9 | 1.4 | .80 | 3.5 | 1.3 | 4.3 | 4.5 | 2.3 |
| 3 | 4.6 | 3.2 | 8.6 | 3.2 | 3.0 | 1.2 | .75 | 5.0 | 2.0 | 7.4 | 4.1 | 2.4 |
| 4 | 4.1 | 4.2 | 7.4 | 2.9 | 2.5 | 1.1 | .75 | 2.2 | 1.7 | 7.3 | 3.9 | 2.2 |
| 5 | 4.3 | 4.1 | 6.2 | 2.8 | 2.3 | 1.1 | .65 | 1.4 | 1.6 | 3.7 | 3.9 | 6.0 |
| 6 | 3.8 | 4.4 | 5.4 | 3.0 | 2.2 | 1.1 | .61 | 1.6 | 1.7 | 2.1 | 4.3 | 4.4 |
| 7 | 6.0 | 5.1 | 4.8 | 3.0 | 2.2 | 1.1 | .61 | 1.3 | 1.3 | 2.1 | 3.4 | 3.1 |
| 8 | 4.8 | 4.0 | 4.6 | 3.2 | 2.2 | 1.0 | .54 | 1.2 | 1.2 | 2.8 | 3.1 | 2.6 |
| 9 | 4.4 | 3.9 | 4.4 | 3.0 | 2.1 | 1.1 | .91 | 1.3 | 1.0 | 2.2 | 3.0 | 2.6 |
| 10 | 4.0 | 3.8 | 4.4 | 2.9 | 2.0 | 1.1 | 1.9 | 1.9 | 1.1 | 1.6 | 2.9 | 2.5 |
| 11 | 4.3 | 3.1 | 4.2 | 2.7 | 2.0 | 1.0 | .97 | 1.4 | 1.1 | 152 | 3.4 | 2.2 |
| 12 | 3.7 | 2.8 | 4.0 | 2.6 | 2.5 | 1.0 | 1.1 | 1.1 | .80 | 33 | 3.3 | 2.0 |
| 13 | 3.0 | 3.3 | 5.6 | 2.5 | 2.7 | 1.1 | .98 | .98 | .86 | 14 | 3.0 | 1.9 |
| 14 | 2.7 | 3.1 | 4.7 | 2.5 | 2.3 | 1.2 | 1.6 | 6.7 | 2.2 | 8.4 | 3.0 | 2.0 |
| 15 | 2.9 | 3.0 | 4.0 | 2.5 | 2.0 | 1.2 | 2.4 | 4.2 | 18 | 7.9 | 3.4 | 2.0 |
| 16 | 3.2 | 8.2 | 3.6 | 2.4 | 1.9 | 1.1 | 2.8 | 2.3 | 12 | 9.1 | 28 | 2.2 |
| 17 | 3.3 | 5.6 | 3.7 | 2.4 | 1.8 | 1.1 | 1.2 | 1.6 | 4.4 | 6.9 | 8.6 | 5.6 |
| 18 | 3.1 | 3.8 | 3.7 | 2.3 | 1.8 | 1.3 | .83 | 2.6 | 3.3 | 5.7 | 4.9 | 3.1 |
| 19 | 10 | 8.7 | 3.6 | 2.2 | 1.7 | 1.1 | 8.7 | 1.8 | 87 | 5.2 | 3.9 | 2.2 |
| 20 | 8.5 | 18 | 3.5 | 2.2 | 1.8 | 1.4 | 5.3 | 1.8 | 45 | 4.5 | 3.4 | 4.3 |
| 21 | 5.2 | 12 | 3.3 | 2.2 | 1.8 | 1.4 | 2.2 | 2.0 | 15 | 4.7 | 3.1 | 3.7 |
| 22 | 8.0 | 9.0 | 3.4 | 2.4 | 1.6 | 1.2 | 1.3 | 2.0 | 9.5 | 15 | 3.0 | 2.6 |
| 23 | 7.9 | 7.5 | 3.2 | 2.9 | 1.6 | 1.0 | 1.1 | 2.1 | 12 | 23 | 3.8 | 6.0 |
| 24 | 5.2 | 6.7 | 3.0 | 2.6 | 1.5 | 1.0 | .98 | 2.6 | 19 | 19 | 3.2 | 7.7 |
| 25 | 5.5 | 5.2 | 3.0 | 2.7 | 1.5 | 1.0 | .98 | 2.4 | 13 | 15 | 2.9 | 6.3 |
| 26 | 4.7 | 4.4 | 3.4 | 2.5 | 1.4 | 1.1 | .92 | 2.7 | 9.2 | 9.1 | 2.6 | 4.6 |
| 27 | 4.2 | 11 | 3.8 | 2.6 | 1.3 | .99 | 1.1 | 2.8 | 7.5 | 7.3 | 2.7 | 3.3 |
| 28 | 3.8 | 20 | 3.1 | 3.6 | 1.3 | .92 | 1.3 | 2.5 | 5.0 | 6.2 | 2.6 | 4.4 |
| 29 | 3.9 | 12 | 3.1 | 14 | --- | .93 | 5.6 | 2.5 | 4.5 | 5.6 | 2.6 | 5.2 |
| 30 | 4.3 | 32 | 3.2 | 6.3 | --- | .95 | 7.8 | 2.4 | 5.1 | 5.2 | 2.5 | 15 |
| 31 | 3.7 | --- | 3.6 | 4.1 | --- | .90 | --- | 2.3 | --- | 5.0 | 2.7 | --- |
| TOTAL | 146.4 | 218.8 | 149.5 | 101.6 | 57.2 | 34.39 | 57.48 | 73.78 | 288.96 | 399.7 | 134.6 | 116.8 |
| MEAN | 4.72 | 7.29 | 4.82 | 3.28 | 2.04 | 1.11 | 1.92 | 2.38 | 9.63 | 12.9 | 4.34 | 3.89 |
| MAX | 10 | 32 | 16 | 14 | 3.3 | 1.4 | 8.7 | 6.7 | 87 | 152 | 28 | 15 |
| MIN | 2.7 | 2.8 | 3.0 | 2.2 | 1.3 | .90 | .54 | .98 | .80 | 1.6 | 2.5 | 1.9 |
| AC-FT | 290 | 434 | 297 | 202 | 113 | 68 | 114 | 146 | 573 | 793 | 267 | 232 |
| CFSM | .28 | .44 | .29 | .20 | .12 | .07 | .11 | .14 | .58 | .77 | .26 | .23 |
| IN. | .33 | .49 | .33 | .23 | .13 | .08 | .13 | .16 | .64 | .89 | .30 | .26 |

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1973 - 1993, BY WATER YEAR (WY)

| | MEAN | 18.8 | 9.81 | 4.30 | 16.2 | 4.27 | 2.11 | 1.96 | 6.34 | 4.96 | 4.28 | 3.24 | 10.1 |
|------|------|------|------|------|------|------|------|------|------|------|------|------|------|
| MAX | 76.4 | 25.2 | 9.67 | 68.8 | 12.1 | 3.92 | 3.69 | 25.5 | 12.1 | 12.9 | 7.74 | 30.1 | |
| (WY) | 1991 | 1991 | 1991 | 1992 | 1991 | 1991 | 1992 | 1992 | 1992 | 1993 | 1992 | 1989 | |
| MIN | 1.43 | 2.15 | 1.22 | .98 | .63 | .59 | .58 | .25 | .53 | .62 | .73 | 1.50 | |
| (WY) | 1992 | 1990 | 1990 | 1990 | 1990 | 1990 | 1990 | 1990 | 1990 | 1989 | 1989 | 1991 | |

SUMMARY STATISTICS

FOR 1992 CALENDAR YEAR

FOR 1993 WATER YEAR

WATER YEARS 1973 - 1993

| | | | |
|--------------------------|--------|---------|-------|
| ANNUAL TOTAL | 4722.4 | 1779.21 | |
| ANNUAL MEAN | 12.9 | 4.87 | 7.23 |
| HIGHEST ANNUAL MEAN | | | 12.1 |
| LOWEST ANNUAL MEAN | | | 1.61 |
| HIGHEST DAILY MEAN | 1520 | 152 | 1520 |
| LOWEST DAILY MEAN | 1.5 | .54 | .05 |
| ANNUAL SEVEN-DAY MINIMUM | 1.9 | .67 | .05 |
| INSTANTANEOUS PEAK FLOW | | 1030 | 1520 |
| INSTANTANEOUS PEAK STAGE | | 7.38 | 17.19 |
| ANNUAL RUNOFF (AC-FT) | 9370 | 3530 | 5230 |
| ANNUAL RUNOFF (CFSM) | .77 | .29 | .43 |
| ANNUAL RUNOFF (INCHES) | 10.52 | 3.96 | 5.88 |
| 10 PERCENT EXCEEDS | 13 | 8.5 | 9.9 |
| 50 PERCENT EXCEEDS | 4.0 | 3.0 | 2.4 |
| 90 PERCENT EXCEEDS | 2.3 | 1.1 | .57 |

RIO COAMO BASIN

50106100 RIO COAMO AT COAMO, PR

LOCATION.--Lat 18°05'00", long 66°21'16", Hydrologic Unit 21010004, on Highway 14 bridge, 0.8 mi (1.3 km) northeast from Parque Atlético, 1.2 mi (1.9 km) southeast from (W.C.P.R.) Antena de Radio.

DRAINAGE AREA.--3.5 mi² (112.7 km²).

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--January 1987 to current year.

GAGE.--Water-stage recorder and crest-stage gage. Elevation of gage is 335 ft (110 m), from topographic map.

REMARKS.--Records poor. Gage-height and precipitation satellite telemetry at station.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1986 TO SEPTEMBER 1987
DAILY MEAN VALUES

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|-------|-----|-----|-----|------|-------|------|-------|-------|------|-------|-------|-------|
| 1 | | | | | e6.2 | e4.1 | e2.1 | 4.0 | 22 | 18 | 9.7 | 3.9 |
| 2 | | | | | e5.6 | e4.1 | e2.1 | 3.7 | 192 | 16 | 6.8 | 4.3 |
| 3 | | | | | e5.4 | e4.2 | e2.0 | 3.7 | 201 | 15 | 7.6 | 4.1 |
| 4 | | | | | e5.5 | e4.2 | e1.9 | 4.5 | 174 | 17 | 9.2 | 4.4 |
| 5 | | | | | e5.4 | e3.9 | e2.5 | 4.9 | 161 | 28 | 12 | 4.0 |
| 6 | | | | | e5.2 | e3.8 | e1.9 | 14 | 135 | 15 | 8.6 | 3.8 |
| 7 | | | | | e5.0 | e3.7 | e1.2 | 6.0 | 91 | 15 | 7.0 | 3.6 |
| 8 | | | | | e4.8 | e3.7 | e8.0 | 8.5 | 86 | 13 | 6.0 | 2.8 |
| 9 | | | | | e4.6 | e3.6 | 6.3 | 18 | 77 | 11 | 5.4 | 3.1 |
| 10 | | | | | e7.0 | e3.7 | 4.4 | 152 | 67 | 10 | 6.9 | 3.2 |
| 11 | | | | | e12 | e3.8 | 118 | 59 | 61 | 9.4 | 5.6 | 3.1 |
| 12 | | | | | e10 | e3.6 | 150 | 22 | 52 | 9.0 | 5.3 | 22 |
| 13 | | | | | e30 | e3.3 | 62 | 8.0 | 49 | 7.9 | 4.9 | 4.4 |
| 14 | | | | | e20 | e2.8 | 76 | 4.8 | 43 | 8.4 | 4.9 | 3.3 |
| 15 | | | | | e10 | e3.3 | 109 | 4.1 | 47 | 9.4 | 35 | 3.2 |
| 16 | | | | | e7.0 | e3.8 | 73 | 3.7 | 40 | 9.5 | 17 | 3.0 |
| 17 | | | | | e6.0 | e2.9 | 57 | 7.1 | 32 | 8.2 | 7.6 | 2.8 |
| 18 | | | | | e5.4 | e2.9 | 33 | 85 | 21 | 8.0 | 6.7 | 38 |
| 19 | | | | | e5.0 | e3.1 | 20 | 81 | 24 | 7.6 | 6.4 | 13 |
| 20 | | | | | e4.6 | e2.7 | 13 | 44 | 60 | 7.7 | 5.5 | 11 |
| 21 | | | | e5.9 | e4.5 | e2.4 | 9.4 | 16 | 103 | 16 | 5.2 | 6.2 |
| 22 | | | | e5.6 | e4.4 | e2.4 | 8.1 | 8.1 | 189 | 12 | 4.8 | 6.2 |
| 23 | | | | e9.8 | e4.5 | e2.3 | 7.3 | 5.8 | 100 | 8.5 | 4.1 | 5.7 |
| 24 | | | | e8.0 | e4.5 | e2.5 | 6.0 | 11 | 66 | 8.0 | 4.1 | 5.7 |
| 25 | | | | e6.1 | e4.4 | e2.5 | 5.3 | 39 | 48 | 7.9 | 4.1 | 5.5 |
| 26 | | | | e5.8 | e4.4 | e2.2 | 4.5 | 63 | 39 | 7.0 | 3.6 | 4.5 |
| 27 | | | | e6.4 | e4.6 | e2.2 | 4.1 | 20 | 32 | 7.4 | 3.6 | 4.3 |
| 28 | | | | e5.7 | e4.3 | e2.1 | 3.9 | 9.4 | 26 | 8.4 | 3.6 | 3.8 |
| 29 | | | | e5.9 | --- | e2.1 | 3.8 | 83 | 23 | 7.4 | 3.4 | 3.6 |
| 30 | | | | e8.7 | --- | e2.0 | 3.8 | 70 | 22 | 6.5 | 3.1 | 9.1 |
| 31 | | | | e7.0 | --- | e2.0 | --- | 40 | --- | 12 | 3.4 | --- |
| TOTAL | | | | --- | 200.3 | 95.9 | 827.5 | 903.3 | 2283 | 344.2 | 221.1 | 195.6 |
| MEAN | | | | --- | 7.15 | 3.09 | 27.6 | 29.1 | 76.1 | 11.1 | 7.13 | 6.52 |
| MAX | | | | --- | 30 | 4.2 | 150 | 152 | 201 | 28 | 35 | 38 |
| MIN | | | | --- | 4.3 | 2.0 | 1.9 | 3.7 | 21 | 6.5 | 3.1 | 2.8 |
| AC-FT | | | | --- | 397 | 190 | 1640 | 1790 | 4530 | 683 | 439 | 388 |
| CFSM | | | | --- | .16 | .07 | .63 | .67 | 1.75 | .26 | .16 | .15 |
| IN. | | | | --- | .17 | .08 | .71 | .77 | 1.95 | .29 | .19 | .17 |

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1987 - 1987, BY WATER YEAR (WY)

| | | | | | | | | | |
|------|-----|------|------|------|------|------|------|------|------|
| MEAN | --- | 7.15 | 3.09 | 27.6 | 29.1 | 76.1 | 11.1 | 7.13 | 6.52 |
| MAX | --- | 7.15 | 3.09 | 27.6 | 29.1 | 76.1 | 11.1 | 7.13 | 6.52 |
| (WY) | --- | 1987 | 1987 | 1987 | 1987 | 1987 | 1987 | 1987 | 1987 |
| MIN | --- | 7.15 | 3.09 | 27.6 | 29.1 | 76.1 | 11.1 | 7.13 | 6.52 |
| (WY) | --- | 1987 | 1987 | 1987 | 1987 | 1987 | 1987 | 1987 | 1987 |

e Estimated

RIO COAMO BASIN

50106100 RIO COAMO AT COAMO, PR--Continued

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1987 TO SEPTEMBER 1988
DAILY MEAN VALUES

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|-------|--------|--------|------|------|------|-------|-------|-------|-------|-------|-------|-------|
| 1 | 5.8 | 27 | 77 | e50 | e24 | 13 | 8.4 | e10 | 4.6 | e8.5 | e2.0 | e48 |
| 2 | 17 | 27 | 104 | e54 | e24 | 13 | 8.1 | e9.0 | 4.4 | e9.8 | e1.8 | e20 |
| 3 | 7.5 | 25 | 88 | e43 | e24 | 11 | 7.9 | 7.6 | 4.3 | e8.0 | e21 | e10 |
| 4 | 6.3 | 25 | 76 | e42 | e24 | 10 | 8.4 | 7.8 | 4.3 | e7.0 | e2.8 | e9.4 |
| 5 | 6.3 | 63 | 101 | e38 | e24 | 9.5 | 8.1 | 7.9 | 4.4 | e5.8 | e2.2 | e8.8 |
| 6 | 5.7 | 156 | 71 | e38 | e24 | 9.5 | 23 | 8.8 | 4.4 | e4.8 | e1.9 | e7.1 |
| 7 | 8.5 | 70 | 124 | e36 | e22 | 11 | 17 | 9.1 | 4.3 | e4.3 | e1.8 | 8.1 |
| 8 | 164 | 43 | 110 | e36 | e20 | 10 | e8.6 | 8.9 | 4.2 | e4.0 | e1.6 | 8.6 |
| 9 | 26 | 23 | 93 | e35 | e19 | 10 | e8.4 | 11 | 4.3 | e3.8 | e1.6 | 8.0 |
| 10 | 8.5 | 31 | 87 | e35 | e19 | 10 | e8.0 | 12 | 4.2 | e3.7 | e1.7 | 8.9 |
| 11 | 6.0 | 17 | 118 | e35 | e18 | 10 | e7.8 | 11 | 4.7 | e3.7 | e1.7 | 32 |
| 12 | 6.0 | 36 | 136 | e34 | e18 | 9.5 | e7.4 | 9.5 | 4.9 | e3.5 | e1.7 | 28 |
| 13 | 4.9 | 29 | 125 | e34 | e18 | 9.6 | e7.4 | 8.5 | 5.1 | e3.3 | e1.6 | 20 |
| 14 | 5.3 | 11 | 116 | e33 | e17 | 11 | e8.0 | 8.2 | 5.2 | e3.1 | e1.5 | 23 |
| 15 | 5.0 | 8.2 | 107 | e33 | e16 | 11 | e8.4 | 8.3 | 6.8 | e3.1 | e1.5 | 14 |
| 16 | 4.8 | 7.3 | 100 | e33 | e15 | 10 | e9.7 | 7.6 | 5.8 | e130 | e1.6 | 12 |
| 17 | 11 | 14 | 84 | e32 | e14 | 11 | e12 | 7.2 | 4.8 | e170 | e21 | 11 |
| 18 | 147 | 16 | 67 | e30 | 14 | 9.9 | e8.2 | 6.9 | 5.0 | e24 | e4.7 | 7.9 |
| 19 | 67 | 13 | 66 | e29 | 13 | 8.5 | e7.4 | 7.4 | 4.7 | e13 | e26 | 8.6 |
| 20 | 29 | 11 | 72 | e28 | 13 | 8.3 | e6.8 | 7.1 | 4.8 | e10 | e2.2 | 8.7 |
| 21 | 82 | 11 | 70 | e27 | 12 | 8.5 | e6.8 | 6.1 | 4.7 | e8.3 | e2.0 | 9.8 |
| 22 | 74 | 14 | 72 | e28 | 12 | 8.2 | e270 | 5.5 | 4.8 | e7.4 | e2.1 | 11 |
| 23 | 47 | 13 | 63 | e27 | 11 | 8.3 | e10 | 5.3 | 4.8 | e7.0 | e3.5 | 11 |
| 24 | 27 | 121 | 62 | e27 | 12 | 7.8 | e8.6 | 4.7 | e12 | e6.1 | e146 | 13 |
| 25 | 22 | e14 | 63 | e27 | 12 | 8.1 | e8.2 | 4.5 | e10 | e5.2 | e63 | 8.3 |
| 26 | 21 | e80 | 57 | e27 | 14 | 8.5 | e8.2 | 3.9 | e8.5 | e4.6 | e13 | 6.8 |
| 27 | 74 | 564 | 61 | e26 | 15 | 8.6 | e7.6 | 4.2 | e8.5 | e4.5 | e9.8 | 9.7 |
| 28 | 50 | 153 | 64 | e26 | 12 | 9.8 | e7.3 | 3.7 | e8.0 | e3.8 | e6.8 | 7.1 |
| 29 | 37 | 149 | 55 | e26 | 12 | 11 | e7.6 | 4.0 | e7.6 | e3.5 | e5.3 | 6.2 |
| 30 | 32 | 116 | 55 | e26 | --- | 9.7 | e12 | 4.3 | e7.2 | e3.3 | e4.2 | 38 |
| 31 | 29 | --- | e54 | e25 | --- | 9.2 | --- | 4.4 | --- | e2.4 | e4.1 | --- |
| TOTAL | 1036.6 | 1887.5 | 2598 | 1020 | 492 | 303.5 | 535.3 | 224.4 | 171.3 | 479.5 | 361.7 | 423.0 |
| MEAN | 33.4 | 62.9 | 83.8 | 32.9 | 17.0 | 9.79 | 17.8 | 7.24 | 5.71 | 15.5 | 11.7 | 14.1 |
| MAX | 164 | 564 | 136 | 54 | 24 | 13 | 270 | 12 | 12 | 170 | 146 | 48 |
| MIN | 4.8 | 7.3 | 54 | 25 | 11 | 7.8 | 6.8 | 3.7 | 4.2 | 2.4 | 1.5 | 6.2 |
| AC-FT | 2060 | 3740 | 5150 | 2020 | 976 | 602 | 1060 | 445 | 340 | 951 | 717 | 839 |
| CFSM | .77 | 1.45 | 1.93 | .76 | .39 | .23 | .41 | .17 | .13 | .36 | .27 | .32 |
| IN. | .89 | 1.61 | 2.22 | .87 | .42 | .26 | .46 | .19 | .15 | .41 | .31 | .36 |

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1987 - 1988, BY WATER YEAR (WY)

| | MEAN | 33.4 | 62.9 | 83.8 | 32.9 | 12.1 | 6.44 | 22.7 | 18.2 | 40.9 | 13.3 | 9.40 | 10.3 |
|------|------|------|------|------|------|------|------|------|------|------|------|------|------|
| MAX | 33.4 | 62.9 | 83.8 | 32.9 | 17.0 | 9.79 | 27.6 | 29.1 | 76.1 | 15.5 | 11.7 | 14.1 | |
| (WY) | 1988 | 1988 | 1988 | 1988 | 1988 | 1988 | 1987 | 1987 | 1987 | 1988 | 1988 | 1988 | 1988 |
| MIN | 33.4 | 62.9 | 83.8 | 32.9 | 7.15 | 3.09 | 17.8 | 7.24 | 5.71 | 11.1 | 7.13 | 6.52 | |
| (WY) | 1988 | 1988 | 1988 | 1988 | 1987 | 1987 | 1988 | 1988 | 1988 | 1987 | 1987 | 1987 | 1987 |

SUMMARY STATISTICS

FOR 1988 WATER YEAR

WATER YEARS 1987 - 1988

| | | | |
|--------------------------|--------|--------|-------|
| ANNUAL TOTAL | 9532.8 | | |
| ANNUAL MEAN | 26.0 | | 26.0 |
| HIGHEST ANNUAL MEAN | | | 26.0 |
| LOWEST ANNUAL MEAN | | | 26.0 |
| HIGHEST DAILY MEAN | 564 | Nov 27 | 564 |
| LOWEST DAILY MEAN | 1.5 | Aug 14 | 1.5 |
| ANNUAL SEVEN-DAY MINIMUM | 1.6 | Aug 9 | 1.6 |
| INSTANTANEOUS PEAK FLOW | 1890 | Oct 8 | 3130 |
| INSTANTANEOUS PEAK STAGE | 8.85 | Oct 8 | 9.84 |
| ANNUAL RUNOFF (AC-FT) | 18910 | | 18870 |
| ANNUAL RUNOFF (CFSM) | .60 | | .60 |
| ANNUAL RUNOFF (INCHES) | 8.15 | | 8.14 |
| 10 PERCENT EXCEEDS | 70 | | 66 |
| 50 PERCENT EXCEEDS | 10 | | 8.6 |
| 90 PERCENT EXCEEDS | 4.2 | | 3.6 |

e Estimated

RIO COAMO BASIN

50106100 RIO COAMO AT COAMO, PR--Continued

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1988 TO SEPTEMBER 1989
DAILY MEAN VALUES

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|-------|-------|-------|-------|------|------|-------|------|------|-------|-------|--------|--------|
| 1 | 16 | 7.9 | 4.1 | 3.8 | 2.0 | 2.4 | 6.0 | 2.0 | 1.4 | .85 | .69 | 4.0 |
| 2 | 9.3 | 8.3 | 4.1 | 3.7 | 2.2 | 3.1 | 8.7 | 2.1 | 4.7 | .85 | .67 | 3.4 |
| 3 | 9.6 | 6.9 | 4.6 | 3.4 | 2.4 | 3.1 | 4.5 | 2.1 | 4.4 | .87 | 1.7 | 2.9 |
| 4 | 10 | 6.4 | 4.1 | 3.6 | 2.2 | 2.9 | 3.2 | 1.8 | 7.1 | .81 | 2.4 | 2.2 |
| 5 | 9.0 | 5.8 | 3.9 | 3.8 | 2.0 | 2.2 | 2.8 | 1.8 | 6.7 | .83 | 11 | 1.9 |
| 6 | 8.0 | 5.0 | 3.9 | 3.4 | 2.2 | 2.0 | 2.6 | 1.8 | 4.0 | .76 | 3.3 | 29 |
| 7 | 7.4 | 5.1 | 3.7 | 3.0 | 1.9 | 1.8 | 2.2 | 1.7 | 3.5 | .91 | 2.7 | 19 |
| 8 | 6.9 | 5.0 | 3.7 | 2.7 | 2.0 | 2.0 | 1.9 | 1.5 | 3.1 | .84 | 4.2 | 6.1 |
| 9 | 6.1 | 5.8 | 3.8 | 2.7 | 2.0 | 4.4 | 1.8 | 1.5 | 2.5 | .75 | 2.6 | 27 |
| 10 | 29 | 6.0 | 3.7 | 2.8 | 2.3 | 3.6 | 1.8 | 1.7 | 2.2 | .79 | 3.0 | 253 |
| 11 | 15 | 6.5 | 3.6 | 2.9 | 2.1 | 2.9 | 1.9 | 2.4 | 1.7 | .87 | 135 | 48 |
| 12 | 10 | 9.2 | 3.6 | 3.5 | 2.0 | 3.9 | 2.1 | 2.4 | 1.1 | .85 | 18 | 13 |
| 13 | 9.7 | 18 | 4.0 | 3.9 | 2.2 | 15 | 2.3 | 2.1 | 1.0 | .78 | 8.9 | 7.0 |
| 14 | 8.8 | 25 | 3.8 | 3.2 | 2.4 | 11 | 2.2 | 1.8 | 1.0 | .78 | 3.9 | 4.5 |
| 15 | 7.9 | 14 | 3.8 | 2.7 | 2.5 | 7.4 | 2.1 | 1.5 | .98 | .87 | 2.8 | 3.7 |
| 16 | 7.9 | 12 | 3.6 | 2.4 | 5.8 | 5.0 | 2.0 | 1.4 | .97 | .94 | 2.5 | 2.6 |
| 17 | 7.5 | 40 | 3.4 | 2.9 | 8.3 | 4.8 | 2.3 | 1.4 | 1.1 | .76 | 2.0 | 4.5 |
| 18 | 7.6 | 33 | 4.6 | 3.4 | 7.7 | 4.5 | 1.6 | 1.6 | e.99 | .81 | 3.0 | 315 |
| 19 | 7.4 | 22 | 3.9 | 3.1 | 4.8 | 6.9 | 1.6 | 1.7 | e.96 | .77 | 18 | 145 |
| 20 | 8.4 | 16 | 3.7 | 2.7 | 4.9 | 10 | 1.6 | 1.7 | e.93 | .68 | 5.5 | 110 |
| 21 | 10 | 13 | 3.2 | 2.5 | 3.8 | 5.4 | 1.6 | 1.5 | e.89 | .70 | 64 | 71 |
| 22 | 9.2 | 11 | 3.1 | 2.4 | 3.5 | 3.2 | 2.6 | 1.2 | 1.2 | .75 | 10 | 53 |
| 23 | 9.7 | 12 | 3.2 | 2.5 | 3.4 | 3.2 | 1.7 | 1.1 | .98 | .77 | 8.2 | 264 |
| 24 | 9.0 | 12 | 3.2 | 2.3 | 3.1 | 3.0 | 1.5 | 1.1 | .99 | .73 | 7.8 | 203 |
| 25 | 7.6 | 23 | 3.4 | 2.3 | 3.0 | 2.8 | 1.5 | 1.2 | .90 | .73 | 8.3 | 84 |
| 26 | 18 | 21 | 3.7 | 2.2 | 2.6 | 3.1 | 3.8 | 1.3 | .91 | .70 | 4.6 | 54 |
| 27 | 15 | 11 | 3.4 | 2.2 | 2.6 | 2.7 | 1.9 | 1.6 | .93 | .73 | 3.9 | 41 |
| 28 | 7.9 | 7.3 | 3.1 | 2.1 | 2.8 | 2.6 | 2.0 | 1.5 | .85 | .73 | 9.6 | 77 |
| 29 | 6.6 | 5.1 | 3.2 | 2.1 | --- | 2.5 | 2.1 | 2.1 | .82 | .69 | 5.5 | 91 |
| 30 | 12 | 4.5 | 4.0 | 2.0 | --- | 2.5 | 2.0 | 1.6 | .87 | .68 | 8.3 | 58 |
| 31 | 14 | --- | 4.2 | 2.0 | --- | 5.8 | --- | 1.4 | --- | .70 | 5.6 | --- |
| TOTAL | 320.5 | 377.8 | 115.3 | 88.2 | 88.7 | 135.7 | 75.9 | 51.6 | 59.67 | 24.28 | 367.66 | 1997.8 |
| MEAN | 10.3 | 12.6 | 3.72 | 2.85 | 3.17 | 4.38 | 2.53 | 1.66 | 1.99 | .78 | 11.9 | 66.6 |
| MAX | 29 | 40 | 4.6 | 3.9 | 8.3 | 15 | 8.7 | 2.4 | 7.1 | .94 | 135 | 315 |
| MIN | 6.1 | 4.5 | 3.1 | 2.0 | 1.9 | 1.8 | 1.5 | 1.1 | .82 | .68 | .67 | 1.9 |
| AC-FT | 636 | 749 | 229 | 175 | 176 | 269 | 151 | 102 | 118 | 48 | 729 | 3960 |
| CFSM | .24 | .29 | .09 | .07 | .07 | .10 | .06 | .04 | .05 | .02 | .27 | 1.53 |
| IN. | .27 | .32 | .10 | .08 | .08 | .12 | .06 | .04 | .05 | .02 | .31 | 1.71 |

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1987 - 1989, BY WATER YEAR (WY)

| | 1987 | 1988 | 1989 | 1987 | 1988 | 1989 | 1987 | 1988 | 1989 | 1987 | 1988 | 1989 |
|------|------|------|------|------|------|------|------|------|------|------|------|------|
| MEAN | 21.9 | 37.8 | 43.8 | 17.9 | 9.19 | 5.75 | 16.0 | 12.7 | 27.9 | 9.12 | 10.2 | 29.1 |
| MAX | 33.4 | 62.9 | 83.8 | 32.9 | 17.0 | 9.79 | 27.6 | 29.1 | 76.1 | 15.5 | 11.9 | 66.6 |
| (WY) | 1988 | 1988 | 1988 | 1988 | 1988 | 1988 | 1987 | 1987 | 1987 | 1988 | 1989 | 1989 |
| MIN | 10.3 | 12.6 | 3.72 | 2.85 | 3.17 | 3.09 | 2.53 | 1.66 | 1.99 | .78 | 7.13 | 6.52 |
| (WY) | 1989 | 1989 | 1989 | 1989 | 1989 | 1987 | 1989 | 1989 | 1989 | 1989 | 1987 | 1987 |

| SUMMARY STATISTICS | FOR 1988 CALENDAR YEAR | FOR 1989 WATER YEAR | WATER YEARS 1987 - 1989 |
|--------------------------|------------------------|---------------------|-------------------------|
| ANNUAL TOTAL | 4824.3 | 3703.11 | |
| ANNUAL MEAN | 13.2 | 10.1 | 18.1 |
| HIGHEST ANNUAL MEAN | | | 26.0 |
| LOWEST ANNUAL MEAN | | | 10.1 |
| HIGHEST DAILY MEAN | 270 | 315 | 564 |
| LOWEST DAILY MEAN | 1.5 | .67 | .67 |
| ANNUAL SEVEN-DAY MINIMUM | 1.6 | .70 | .70 |
| INSTANTANEOUS PEAK FLOW | | 3000 | 3130 |
| INSTANTANEOUS PEAK STAGE | | 9.57 | 9.84 |
| ANNUAL RUNOFF (AC-FT) | 9570 | 7350 | 13120 |
| ANNUAL RUNOFF (CFSM) | .30 | .23 | .42 |
| ANNUAL RUNOFF (INCHES) | 4.13 | 3.17 | 5.66 |
| 10 PERCENT EXCEEDS | 27 | 14 | 50 |
| 50 PERCENT EXCEEDS | 8.4 | 3.1 | 6.8 |
| 90 PERCENT EXCEEDS | 3.6 | .91 | 1.8 |

e Estimated

RIO COAMO BASIN

50106100 RIO COAMO AT COAMO, PR--Continued

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1989 TO SEPTEMBER 1990
DAILY MEAN VALUES

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|-------|------|------|-------|-------|-------|-------|-------|-------|------|------|-------|--------|
| 1 | 47 | 32 | 12 | 8.9 | e5.9 | e5.2 | e4.9 | e6.9 | e2.6 | 1.7 | 2.2 | 7.6 |
| 2 | 53 | 31 | 11 | 8.6 | e5.8 | e5.8 | e4.6 | e4.5 | e2.2 | 1.4 | 2.1 | 4.8 |
| 3 | 65 | 30 | 11 | 7.8 | e6.0 | e4.8 | e3.3 | e2.8 | e2.5 | 1.7 | 1.9 | 19 |
| 4 | 60 | 29 | 10 | 7.4 | e6.2 | e3.8 | e3.6 | e2.7 | e3.1 | 1.4 | 2.9 | 6.1 |
| 5 | 52 | 29 | 10 | 6.0 | e6.1 | e4.2 | e3.8 | e2.5 | e1.8 | 1.6 | 2.4 | 85 |
| 6 | 45 | 28 | 11 | 5.8 | e5.1 | e4.9 | e3.8 | e2.9 | e1.6 | 1.9 | 2.1 | 48 |
| 7 | 38 | 27 | 11 | 5.6 | e6.0 | e5.8 | e3.8 | e3.6 | e1.5 | 1.9 | 1.8 | 32 |
| 8 | 70 | 36 | 11 | 5.9 | e7.4 | e5.4 | e3.8 | e4.3 | e1.4 | 2.0 | 1.6 | 28 |
| 9 | 33 | 30 | 11 | 6.3 | e7.0 | e4.3 | e3.8 | e4.7 | e1.3 | 1.8 | 1.8 | 60 |
| 10 | 28 | 29 | 10 | 6.3 | e8.0 | e5.2 | e3.7 | e7.0 | e1.4 | e1.7 | 2.0 | 40 |
| 11 | 25 | 26 | 11 | 6.1 | e7.0 | e5.6 | e3.4 | e9.2 | e1.4 | e1.4 | 1.9 | 21 |
| 12 | 23 | 25 | 10 | 6.4 | e15 | e5.7 | e4.7 | e5.0 | e1.4 | e1.3 | 2.4 | 18 |
| 13 | 22 | 23 | 10 | 6.1 | e11 | e6.0 | e4.3 | e4.2 | e1.6 | e1.2 | 2.1 | 188 |
| 14 | 21 | 23 | 10 | 6.4 | e10 | e4.8 | e3.7 | e3.7 | 2.6 | e1.3 | 2.3 | 414 |
| 15 | 24 | 22 | 10 | 6.4 | e11 | e3.8 | e4.0 | e3.9 | 6.3 | e1.4 | e2.5 | 139 |
| 16 | 27 | 22 | 11 | 5.7 | e8.6 | e3.0 | e3.5 | e3.0 | 5.1 | e1.4 | 1.8 | 28 |
| 17 | 24 | 20 | 10 | 6.6 | e8.2 | e3.1 | e5.8 | e3.0 | 2.5 | e1.4 | 1.6 | 15 |
| 18 | 27 | 20 | 9.3 | 6.1 | e9.0 | e3.3 | e8.6 | e3.0 | 2.4 | e1.3 | 1.4 | 11 |
| 19 | 70 | 20 | 9.2 | 5.3 | e6.6 | e3.6 | e12 | e2.8 | 2.7 | e1.5 | 1.4 | 8.5 |
| 20 | 238 | 19 | 9.3 | 5.8 | e5.3 | e3.9 | e6.4 | e2.4 | 3.7 | e1.4 | 1.3 | 6.9 |
| 21 | 125 | 18 | 8.0 | 5.5 | e5.0 | e3.9 | e4.7 | e2.4 | 2.5 | e1.3 | 1.2 | 6.0 |
| 22 | 90 | 17 | 7.8 | 5.6 | e4.5 | e3.8 | e4.1 | e2.4 | 2.1 | e1.6 | 107 | 5.4 |
| 23 | 74 | 16 | 8.2 | 5.4 | e4.3 | e3.5 | e4.3 | e2.1 | 1.9 | e1.6 | 9.8 | 6.2 |
| 24 | 67 | 16 | 8.4 | 5.5 | e4.6 | e3.1 | e5.2 | e2.0 | 1.7 | 1.7 | 4.5 | 21 |
| 25 | 79 | 16 | 8.1 | 5.7 | e5.0 | e2.6 | e8.4 | e2.0 | 2.0 | 1.7 | 3.6 | 172 |
| 26 | 62 | 15 | 8.1 | 6.4 | e5.2 | e2.7 | e8.8 | e1.7 | 2.3 | 1.6 | 3.4 | 116 |
| 27 | 53 | 15 | 7.6 | e6.7 | e4.9 | e2.7 | e5.0 | e1.7 | 1.8 | 2.0 | 3.3 | 57 |
| 28 | 40 | 14 | 7.5 | e6.8 | e4.6 | e3.0 | e3.3 | e2.2 | 1.6 | 2.8 | 160 | 44 |
| 29 | 53 | 13 | 7.8 | e6.9 | --- | e3.7 | e3.0 | e2.8 | 1.8 | 2.4 | 308 | 44 |
| 30 | 39 | 12 | 8.2 | e6.3 | --- | e4.0 | 4.6 | e2.6 | 1.5 | 2.4 | 66 | 98 |
| 31 | 36 | --- | 7.8 | e6.1 | --- | e4.0 | --- | e2.7 | --- | 2.1 | 15 | --- |
| TOTAL | 1710 | 673 | 295.3 | 196.4 | 193.3 | 129.2 | 146.9 | 106.7 | 68.3 | 51.9 | 721.3 | 1749.5 |
| MEAN | 55.2 | 22.4 | 9.53 | 6.34 | 6.90 | 4.17 | 4.90 | 3.44 | 2.28 | 1.67 | 23.3 | 58.3 |
| MAX | 238 | 36 | 12 | 8.9 | 15 | 6.0 | 12 | 9.2 | 6.3 | 2.8 | 308 | 414 |
| MIN | 21 | 12 | 7.5 | 5.3 | 4.3 | 2.6 | 3.0 | 1.7 | 1.3 | 1.2 | 1.2 | 4.8 |
| AC-FT | 3390 | 1330 | 586 | 390 | 383 | 256 | 291 | 212 | 135 | 103 | 1430 | 3470 |
| CFSM | 1.27 | .52 | .22 | .15 | .16 | .10 | .11 | .08 | .05 | .04 | .53 | 1.34 |
| IN. | 1.46 | .58 | .25 | .17 | .17 | .11 | .13 | .09 | .06 | .04 | .62 | 1.50 |

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1987 - 1990, BY WATER YEAR (WY)

| | MEAN | 33.0 | 32.6 | 32.4 | 14.0 | 8.62 | 5.36 | 13.2 | 10.4 | 21.5 | 7.26 | 13.5 | 36.4 |
|------|------|------|------|------|------|------|------|------|------|------|------|------|------|
| MAX | 55.2 | 62.9 | 83.8 | 32.9 | 17.0 | 9.79 | 27.6 | 29.1 | 76.1 | 15.5 | 23.3 | 66.6 | |
| (WY) | 1990 | 1988 | 1988 | 1988 | 1988 | 1988 | 1987 | 1987 | 1987 | 1988 | 1990 | 1989 | |
| MIN | 10.3 | 12.6 | 3.72 | 2.85 | 3.17 | 3.09 | 2.53 | 1.66 | 1.99 | .78 | 7.13 | 6.52 | |
| (WY) | 1989 | 1989 | 1989 | 1989 | 1989 | 1987 | 1989 | 1989 | 1989 | 1989 | 1987 | 1987 | |

SUMMARY STATISTICS

FOR 1989 CALENDAR YEAR

FOR 1990 WATER YEAR

WATER YEARS 1987 - 1990

| | | | |
|--------------------------|---------|--------|-------|
| ANNUAL TOTAL | 5567.81 | 6041.8 | |
| ANNUAL MEAN | 15.3 | 16.6 | 17.6 |
| HIGHEST ANNUAL MEAN | | | 26.0 |
| LOWEST ANNUAL MEAN | | | 10.1 |
| HIGHEST DAILY MEAN | 315 | Sep 18 | 564 |
| LOWEST DAILY MEAN | .67 | Aug 2 | .67 |
| ANNUAL SEVEN-DAY MINIMUM | .70 | Jul 27 | 1.3 |
| INSTANTANEOUS PEAK FLOW | | | 4740 |
| INSTANTANEOUS PEAK STAGE | | | 10.89 |
| INSTANTANEOUS LOW FLOW | | | 1.1 |
| ANNUAL RUNOFF (AC-FT) | 11040 | 11980 | 12740 |
| ANNUAL RUNOFF (CFSM) | .35 | .38 | .40 |
| ANNUAL RUNOFF (INCHES) | 4.76 | 5.17 | 5.49 |
| 10 PERCENT EXCEEDS | 38 | 38 | 47 |
| 50 PERCENT EXCEEDS | 3.1 | 5.7 | 6.1 |
| 90 PERCENT EXCEEDS | .91 | 1.7 | 1.8 |

e Estimated

RIO COAMO BASIN

50106100 RIO COAMO AT COAMO, PR--Continued

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1990 TO SEPTEMBER 1991
DAILY MEAN VALUES

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|-------|-------|------|------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| 1 | 219 | 114 | 19 | 25 | 10 | 8.2 | 6.4 | 12 | 4.3 | 4.1 | 4.2 | 56 |
| 2 | 115 | 102 | 18 | 21 | 9.9 | 7.5 | 6.8 | 12 | 5.3 | 3.2 | 3.7 | 8.9 |
| 3 | 48 | 91 | 19 | 20 | 9.5 | 7.7 | 6.7 | 7.8 | 5.3 | 3.0 | 3.9 | 5.2 |
| 4 | 27 | 88 | 19 | 18 | 10 | 8.1 | 6.9 | 7.2 | 4.7 | 2.8 | 3.6 | 4.5 |
| 5 | 23 | 94 | 17 | 18 | 14 | 8.5 | 7.0 | 6.2 | 4.6 | 2.5 | 3.2 | 4.1 |
| 6 | 23 | 78 | 16 | 18 | 16 | 8.3 | 6.5 | 5.5 | 4.3 | 2.4 | 2.8 | 4.1 |
| 7 | 21 | 72 | 16 | 18 | 12 | 8.2 | 7.1 | 5.3 | 4.1 | 2.5 | 2.4 | 134 |
| 8 | 61 | 64 | 15 | 18 | 10 | 7.8 | 7.2 | 5.2 | 4.0 | 32 | 2.2 | 18 |
| 9 | 175 | 62 | 15 | 18 | 9.8 | 8.2 | 7.5 | 5.5 | 3.9 | 11 | 2.2 | 6.8 |
| 10 | 170 | 61 | 15 | 17 | 10 | 7.7 | 6.7 | 5.4 | 3.9 | 4.1 | 2.2 | 6.3 |
| 11 | 111 | 59 | 16 | 16 | 12 | 7.7 | 6.9 | 55 | 4.0 | 3.5 | 2.0 | 5.5 |
| 12 | 170 | 60 | 17 | 16 | 66 | 7.4 | 6.4 | 8.2 | 5.5 | 3.2 | 2.0 | 5.0 |
| 13 | 357 | 57 | 14 | 16 | 28 | 7.2 | 6.5 | 8.7 | 4.4 | 3.0 | 1.8 | 4.9 |
| 14 | 381 | 51 | 14 | 15 | 13 | 7.1 | 6.5 | 11 | 3.5 | 2.7 | 6.7 | 4.7 |
| 15 | 348 | 48 | 15 | 14 | 11 | 6.9 | 6.7 | 7.5 | 3.2 | 2.9 | 5.4 | 4.5 |
| 16 | 545 | 48 | 15 | 13 | 9.8 | 6.9 | 7.1 | 6.4 | 3.0 | 153 | 3.6 | 4.3 |
| 17 | 278 | 49 | 14 | 13 | 9.8 | 6.7 | 6.7 | 6.4 | 2.7 | 25 | 3.0 | 5.5 |
| 18 | 222 | 46 | 13 | 12 | 8.7 | 6.7 | 7.1 | 6.3 | 2.4 | 9.1 | 3.5 | 6.2 |
| 19 | 236 | 43 | 13 | 11 | 8.8 | 6.8 | 8.0 | 6.0 | 2.3 | 6.1 | 2.7 | 118 |
| 20 | 273 | 181 | 13 | 11 | 8.9 | 6.8 | 7.2 | 6.0 | 2.5 | 5.0 | 2.6 | 29 |
| 21 | 1080 | 71 | 14 | 11 | 8.4 | 6.6 | 6.9 | 7.1 | 3.9 | 4.5 | 2.8 | 8.2 |
| 22 | 415 | 34 | 14 | 11 | 8.3 | 7.7 | 7.2 | 5.5 | 3.8 | 4.5 | 27 | 6.0 |
| 23 | 283 | 28 | 14 | 10 | 8.1 | 8.6 | 7.3 | 5.0 | 3.1 | 4.4 | 11 | 7.0 |
| 24 | 342 | 24 | 16 | 9.9 | 8.0 | 7.4 | 6.6 | 5.0 | 3.0 | 4.2 | 4.1 | 4.6 |
| 25 | 661 | 23 | 16 | 10 | 8.2 | 6.6 | 6.5 | 5.2 | 2.9 | 4.1 | 2.9 | 3.6 |
| 26 | 688 | 21 | 16 | 10 | 8.0 | 25 | 6.3 | 5.0 | 2.6 | 4.1 | 2.2 | 3.4 |
| 27 | 389 | 21 | 17 | 10 | 7.7 | 12 | 6.0 | 4.6 | 2.6 | 3.8 | 3.1 | 3.2 |
| 28 | 278 | 20 | 17 | 9.7 | 7.9 | 7.9 | 5.6 | 4.4 | 2.6 | 129 | 2.8 | 3.3 |
| 29 | 192 | 20 | 18 | 9.8 | --- | 7.2 | 5.5 | 4.6 | 2.7 | 11 | 2.5 | 3.6 |
| 30 | 226 | 21 | 19 | 9.5 | --- | 7.0 | 5.5 | 4.5 | 3.1 | 4.6 | 2.3 | 3.7 |
| 31 | 130 | --- | 33 | 9.7 | --- | 6.3 | --- | 4.3 | --- | 3.8 | 2.0 | --- |
| TOTAL | 8487 | 1751 | 507 | 438.6 | 351.8 | 252.7 | 201.3 | 248.8 | 108.2 | 459.1 | 126.4 | 482.1 |
| MEAN | 274 | 58.4 | 16.4 | 14.1 | 12.6 | 8.15 | 6.71 | 8.03 | 3.61 | 14.8 | 4.08 | 16.1 |
| MAX | 1080 | 181 | 33 | 25 | 66 | 25 | 8.0 | 55 | 5.5 | 153 | 27 | 134 |
| MIN | 21 | 20 | 13 | 9.5 | 7.7 | 6.3 | 5.5 | 4.3 | 2.3 | 2.4 | 1.8 | 3.2 |
| AC-FT | 16830 | 3470 | 1010 | 870 | 698 | 501 | 399 | 493 | 215 | 911 | 251 | 956 |
| CFSM | 6.29 | 1.34 | .38 | .33 | .29 | .19 | .15 | .18 | .08 | .34 | .09 | .37 |
| IN. | 7.26 | 1.50 | .43 | .38 | .30 | .22 | .17 | .21 | .09 | .39 | .11 | .41 |

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1987 - 1991, BY WATER YEAR (WY)

| | | | | | | | | | | | | |
|------|------|------|------|------|------|------|------|------|------|------|------|------|
| MEAN | 93.2 | 39.1 | 28.4 | 14.1 | 9.40 | 5.92 | 11.9 | 9.90 | 17.9 | 8.77 | 11.6 | 32.3 |
| MAX | 274 | 62.9 | 83.8 | 32.9 | 17.0 | 9.79 | 27.6 | 29.1 | 76.1 | 15.5 | 23.3 | 66.6 |
| (WY) | 1991 | 1988 | 1988 | 1988 | 1988 | 1988 | 1987 | 1987 | 1987 | 1988 | 1990 | 1989 |
| MIN | 10.3 | 12.6 | 3.72 | 2.85 | 3.17 | 3.09 | 2.53 | 1.66 | 1.99 | .78 | 4.08 | 6.52 |
| (WY) | 1989 | 1989 | 1989 | 1989 | 1989 | 1987 | 1989 | 1989 | 1989 | 1989 | 1991 | 1987 |

SUMMARY STATISTICS

FOR 1990 CALENDAR YEAR

FOR 1991 WATER YEAR

WATER YEARS 1987 - 1991

| | | | |
|--------------------------|---------|---------|-------|
| ANNUAL TOTAL | 14108.5 | 13414.0 | |
| ANNUAL MEAN | 38.7 | 36.8 | 22.4 |
| HIGHEST ANNUAL MEAN | | | 36.8 |
| LOWEST ANNUAL MEAN | | | 10.1 |
| HIGHEST DAILY MEAN | 1080 | 1080 | 1080 |
| LOWEST DAILY MEAN | 1.2 | 1.8 | .67 |
| ANNUAL SEVEN-DAY MINIMUM | 1.3 | 2.1 | .70 |
| INSTANTANEOUS PEAK FLOW | | 6200 | 6200 |
| INSTANTANEOUS PEAK STAGE | | 11.92 | 11.92 |
| INSTANTANEOUS LOW FLOW | | 1.2 | 1.1 |
| ANNUAL RUNOFF (AC-FT) | 27980 | 26610 | 16210 |
| ANNUAL RUNOFF (CFSM) | .89 | .84 | .51 |
| ANNUAL RUNOFF (INCHES) | 12.07 | 11.47 | 6.99 |
| 10 PERCENT EXCEEDS | 100 | 74 | 52 |
| 50 PERCENT EXCEEDS | 5.7 | 7.9 | 6.8 |
| 90 PERCENT EXCEEDS | 1.7 | 3.0 | 2.0 |

RIO COAMO BASIN

50106100 RIO COAMO AT COAMO, PR--Continued

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1991 TO SEPTEMBER 1992
DAILY MEAN VALUES

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|-------|-------|-------|-------|--------|-------|-------|-------|--------|------|-------|-------|-------|
| 1 | 3.5 | 14 | 6.2 | 6.0 | e13 | e7.8 | 12 | 7.8 | 172 | 15 | 8.7 | 4.6 |
| 2 | 3.4 | 13 | 6.0 | 5.7 | e12 | e8.1 | 9.5 | 7.2 | 137 | 14 | 7.6 | 4.5 |
| 3 | 3.2 | 10 | 5.6 | 5.3 | e12 | e8.2 | 7.2 | 7.2 | 93 | 14 | 7.7 | 4.3 |
| 4 | 2.9 | 8.7 | 5.8 | 5.6 | e23 | e8.1 | 6.6 | 6.7 | 69 | 13 | 7.9 | 4.3 |
| 5 | 2.9 | 8.1 | 5.9 | e1580 | e46 | e7.8 | 6.5 | 6.5 | 60 | 13 | 82 | 4.1 |
| 6 | 3.0 | 7.4 | 5.8 | e130 | e38 | e8.0 | 6.5 | 7.9 | 53 | 12 | 29 | 4.0 |
| 7 | 3.1 | 28 | 5.6 | e70 | e32 | e9.4 | 6.6 | 9.9 | 50 | 12 | 9.1 | 7.9 |
| 8 | 3.2 | 14 | 5.4 | e54 | e22 | e13 | 6.1 | 7.9 | 54 | 11 | 7.6 | 13 |
| 9 | 4.8 | 11 | 5.5 | e48 | e18 | e11 | 6.9 | 7.1 | 42 | 11 | 7.3 | 6.9 |
| 10 | 4.2 | 9.4 | 5.1 | e52 | e17 | e8.0 | 11 | 6.6 | 38 | 11 | 7.0 | 4.8 |
| 11 | 3.5 | 8.4 | 5.2 | e52 | e16 | e7.6 | 7.8 | 6.4 | 41 | 10 | 7.0 | 4.5 |
| 12 | 3.1 | 7.6 | 5.1 | e40 | e14 | e7.4 | 7.7 | 7.9 | 44 | 10 | 7.0 | 4.4 |
| 13 | 2.8 | 7.5 | 5.3 | e35 | e14 | e7.4 | 7.7 | 7.0 | 35 | 9.4 | 6.2 | 4.3 |
| 14 | 2.7 | 7.6 | 5.2 | e32 | e13 | e7.2 | 7.6 | 27 | 32 | 8.9 | 6.3 | 4.3 |
| 15 | 2.5 | 7.4 | 5.0 | e30 | e12 | e7.2 | 8.6 | 21 | 30 | 8.5 | 6.2 | 4.3 |
| 16 | 2.4 | 7.0 | 5.4 | e27 | e11 | e8.1 | 8.5 | 15 | 29 | 10 | 6.2 | 4.6 |
| 17 | 2.4 | 6.7 | 5.4 | e24 | e10 | e8.5 | 12 | 13 | 28 | 9.1 | 6.2 | 4.9 |
| 18 | 2.4 | 6.4 | 5.2 | e22 | e10 | e8.6 | 9.0 | 9.9 | 27 | 9.1 | 5.7 | 5.0 |
| 19 | 2.3 | 6.1 | 5.4 | e21 | e10 | e9.6 | 22 | 9.4 | 25 | 8.5 | 5.7 | 5.0 |
| 20 | 21 | 6.1 | 5.6 | e20 | e9.9 | e9.4 | e45 | 8.7 | 25 | 8.4 | 7.0 | 8.7 |
| 21 | 5.5 | 6.0 | 5.8 | e19 | e9.4 | e8.4 | e33 | 8.4 | 30 | 8.5 | 7.4 | 9.0 |
| 22 | 75 | 6.0 | 6.0 | e19 | e9.8 | e7.8 | e17 | 8.4 | 25 | 8.8 | 6.2 | 5.9 |
| 23 | 25 | 6.0 | 5.9 | e19 | e10 | e6.4 | e12 | 203 | 22 | 8.4 | 6.1 | 7.1 |
| 24 | 14 | 6.0 | 5.7 | e19 | e10 | e6.0 | 9.6 | 198 | 21 | 8.8 | 6.0 | 6.1 |
| 25 | 12 | 6.7 | 5.9 | e18 | e9.0 | e5.8 | 8.7 | 112 | 20 | 8.7 | 5.8 | 5.7 |
| 26 | 11 | 6.2 | 5.8 | e17 | e9.9 | e5.6 | 8.5 | 1220 | 18 | 8.4 | 5.7 | 5.4 |
| 27 | 10 | 6.6 | 5.4 | e17 | e9.0 | 5.4 | 8.4 | 87 | 18 | 8.1 | 5.5 | 5.4 |
| 28 | 10 | 7.1 | 5.6 | e16 | e8.0 | 6.1 | 7.3 | 40 | 17 | 7.7 | 5.4 | 5.5 |
| 29 | 11 | 7.0 | 5.6 | e16 | e7.8 | 5.8 | 7.3 | 28 | 16 | 7.5 | 5.2 | 5.4 |
| 30 | 45 | 6.6 | 5.4 | e15 | --- | 5.9 | 7.4 | 29 | 16 | 7.6 | 5.0 | 15 |
| 31 | 29 | --- | 5.7 | e14 | --- | 8.1 | --- | 24 | --- | 8.2 | 4.7 | --- |
| TOTAL | 326.8 | 258.6 | 172.5 | 2448.6 | 435.8 | 241.7 | 334.0 | 2157.9 | 1287 | 308.6 | 300.4 | 178.9 |
| MEAN | 10.5 | 8.62 | 5.56 | 79.0 | 15.0 | 7.80 | 11.1 | 69.6 | 42.9 | 9.95 | 9.69 | 5.96 |
| MAX | 75 | 28 | 6.2 | 1580 | 46 | 13 | 45 | 1220 | 172 | 15 | 82 | 15 |
| MIN | 2.3 | 6.0 | 5.0 | 5.3 | 7.8 | 5.4 | 6.1 | 6.4 | 16 | 7.5 | 4.7 | 4.0 |
| AC-FT | 648 | 513 | 342 | 4860 | 864 | 479 | 662 | 4280 | 2550 | 612 | 596 | 355 |
| CFSM | .24 | .20 | .13 | 1.82 | .35 | .18 | .26 | 1.60 | .99 | .23 | .22 | .14 |
| IN. | .28 | .22 | .15 | 2.09 | .37 | .21 | .29 | 1.85 | 1.10 | .26 | .26 | .15 |

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1987 - 1992, BY WATER YEAR (WY)

| | MEAN | 76.7 | 33.0 | 23.8 | 27.0 | 10.4 | 6.23 | 11.8 | 19.9 | 22.1 | 8.97 | 11.3 | 27.9 |
|------|------|------|------|------|------|------|------|------|------|------|------|------|------|
| MAX | 274 | 62.9 | 83.8 | 79.0 | 17.0 | 9.79 | 27.6 | 69.6 | 76.1 | 15.5 | 23.3 | 66.6 | |
| (WY) | 1991 | 1988 | 1988 | 1992 | 1988 | 1988 | 1987 | 1992 | 1987 | 1988 | 1990 | 1989 | |
| MIN | 10.3 | 8.62 | 3.72 | 2.85 | 3.17 | 3.09 | 2.53 | 1.66 | 1.99 | .78 | 4.08 | 5.96 | |
| (WY) | 1989 | 1992 | 1989 | 1989 | 1989 | 1987 | 1989 | 1989 | 1989 | 1989 | 1991 | 1992 | |

SUMMARY STATISTICS

FOR 1991 CALENDAR YEAR

FOR 1992 WATER YEAR

WATER YEARS 1987 - 1992

| | | | |
|--------------------------|--------|--------|-------|
| ANNUAL TOTAL | 3426.9 | 8450.8 | |
| ANNUAL MEAN | 9.39 | 23.1 | 22.5 |
| HIGHEST ANNUAL MEAN | | | 36.8 |
| LOWEST ANNUAL MEAN | | | 10.1 |
| HIGHEST DAILY MEAN | 153 | Jul 16 | 1580 |
| LOWEST DAILY MEAN | 1.8 | Aug 13 | 2.3 |
| ANNUAL SEVEN-DAY MINIMUM | 2.1 | Aug 7 | 2.5 |
| INSTANTANEOUS PEAK FLOW | | | 9290 |
| INSTANTANEOUS PEAK STAGE | | | 13.49 |
| INSTANTANEOUS LOW FLOW | | | 1.1 |
| ANNUAL RUNOFF (AC-FT) | 6800 | 16760 | 16310 |
| ANNUAL RUNOFF (CFSM) | .22 | .53 | .52 |
| ANNUAL RUNOFF (INCHES) | 2.93 | 7.23 | 7.03 |
| 10 PERCENT EXCEEDS | 14 | 32 | 47 |
| 50 PERCENT EXCEEDS | 6.3 | 8.1 | 7.2 |
| 90 PERCENT EXCEEDS | 2.9 | 5.0 | 2.1 |

e Estimated

RIO COAMO BASIN

50106100 RIO COAMO AT COAMO, PR--Continued

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993
DAILY MEAN VALUES

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|-------|--------|------|------|------|-------|-------|-------|-------|-------|-------|-------|-------|
| 1 | 23 | 95 | 39 | 19 | 17 | 8.8 | 3.9 | 15 | 7.7 | 5.0 | 7.4 | 6.5 |
| 2 | 10 | 49 | 32 | 19 | 14 | 7.5 | 3.8 | 47 | 7.6 | 4.8 | 7.4 | 6.5 |
| 3 | 5.8 | 42 | 28 | 18 | 15 | 6.6 | 4.0 | 32 | 7.3 | 4.7 | 7.4 | 6.5 |
| 4 | 5.1 | 39 | 26 | 17 | 13 | 6.9 | 4.2 | 16 | 7.1 | 4.7 | 7.4 | 6.5 |
| 5 | 19 | 35 | 25 | 17 | 12 | 7.1 | 4.2 | 15 | 7.1 | 4.5 | 7.2 | 79 |
| 6 | 120 | 33 | 24 | 16 | 11 | 7.5 | 3.9 | 17 | 6.8 | 4.6 | 7.1 | 67 |
| 7 | 64 | 32 | 23 | 16 | 11 | 7.5 | 3.9 | 14 | 6.2 | 4.6 | 7.1 | 29 |
| 8 | 59 | 29 | 22 | 16 | 10 | 7.3 | 3.8 | 13 | 6.2 | 4.5 | 7.1 | 14 |
| 9 | 40 | 28 | 22 | 16 | 10 | 7.4 | 6.1 | 14 | 6.2 | 4.5 | 7.0 | 11 |
| 10 | 19 | 29 | 22 | 16 | 9.6 | 7.2 | 7.3 | 16 | 6.0 | 4.5 | 6.8 | 12 |
| 11 | 35 | 28 | 21 | 15 | 8.9 | 6.4 | 8.3 | 14 | 6.0 | 24 | 7.1 | 10 |
| 12 | 16 | 27 | 21 | 15 | 8.8 | 6.2 | 15 | 12 | 5.9 | 13 | 7.4 | 9.0 |
| 13 | 14 | 32 | 21 | 14 | 9.6 | 5.7 | 20 | 12 | 5.7 | 12 | 7.7 | 8.7 |
| 14 | 53 | 32 | 22 | 15 | 9.6 | 5.9 | 17 | 29 | 5.6 | 11 | 7.8 | 8.6 |
| 15 | 33 | 29 | 22 | 15 | 9.2 | 5.6 | 17 | 19 | 12 | 11 | 7.8 | 8.4 |
| 16 | 58 | 37 | 21 | 15 | 8.7 | 5.2 | 14 | 14 | 5.8 | 10 | 46 | 8.7 |
| 17 | 77 | 29 | 20 | 14 | 8.6 | 5.0 | 12 | 13 | 5.3 | 9.8 | 8.9 | 11 |
| 18 | 27 | 41 | 20 | 13 | e10 | 4.7 | 16 | 12 | 5.2 | 9.3 | 7.8 | 11 |
| 19 | 56 | 33 | 20 | 13 | e8.4 | 4.7 | 9.3 | 10 | 12 | 9.1 | 7.6 | 11 |
| 20 | 27 | 87 | 20 | 13 | e8.4 | 4.6 | 13 | 12 | 14 | 8.7 | 7.4 | 30 |
| 21 | 19 | 60 | 20 | 13 | e8.2 | 4.7 | 16 | 12 | 6.6 | 8.5 | 7.3 | 18 |
| 22 | 92 | 44 | 20 | 13 | e8.2 | 4.8 | 15 | 12 | 6.2 | 8.9 | 7.1 | 13 |
| 23 | 74 | 38 | 19 | 14 | 88.0 | 4.4 | 12 | 12 | 5.8 | 9.3 | 7.1 | 60 |
| 24 | 185 | 34 | 18 | 13 | 8.0 | 4.9 | 15 | 20 | 5.7 | 8.8 | 7.1 | 14 |
| 25 | 141 | 31 | 18 | 13 | 8.0 | 5.4 | 14 | 21 | 5.7 | 8.6 | 7.1 | 9.1 |
| 26 | 99 | 30 | 24 | 13 | 7.9 | 4.8 | 11 | 21 | 5.6 | 8.4 | 7.1 | 9.4 |
| 27 | 82 | 87 | 24 | 12 | 7.9 | 4.5 | 11 | 41 | 5.4 | 8.2 | 7.5 | 8.8 |
| 28 | 76 | 104 | 21 | 78 | 7.9 | 4.5 | 64 | 12 | 5.4 | 8.0 | 11 | 50 |
| 29 | 76 | 59 | 20 | 86 | --- | 4.4 | 109 | 9.1 | 4.8 | 7.7 | 7.6 | 16 |
| 30 | 187 | 51 | 19 | 29 | --- | 4.1 | 47 | 8.1 | 4.9 | 7.7 | 6.8 | 48 |
| 31 | 78 | --- | 20 | 20 | --- | 4.0 | --- | 7.9 | --- | 7.7 | 6.5 | --- |
| TOTAL | 1869.9 | 1324 | 694 | 616 | 276.9 | 178.3 | 500.7 | 522.1 | 201.8 | 256.1 | 269.6 | 600.7 |
| MEAN | 60.3 | 44.1 | 22.4 | 19.9 | 9.89 | 5.75 | 16.7 | 16.8 | 6.73 | 8.26 | 8.70 | 20.0 |
| MAX | 187 | 104 | 39 | 86 | 17 | 8.8 | 109 | 47 | 14 | 24 | 46 | 79 |
| MIN | 5.1 | 27 | 18 | 12 | 7.9 | 4.0 | 3.8 | 7.9 | 4.8 | 4.5 | 6.5 | 6.5 |
| AC-FT | 3710 | 2630 | 1380 | 1220 | 549 | 354 | 993 | 1040 | 400 | 508 | 535 | 1190 |
| CFSM | 1.39 | 1.01 | .51 | .46 | .23 | .13 | .38 | .39 | .15 | .19 | .20 | .46 |
| IN. | 1.60 | 1.13 | .59 | .53 | .24 | .15 | .43 | .45 | .17 | .22 | .23 | .51 |

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1987 - 1993, BY WATER YEAR (WY)

| | MEAN | 73.9 | 34.8 | 23.6 | 25.8 | 10.3 | 6.16 | 12.5 | 19.4 | 19.9 | 8.86 | 10.9 | 26.8 |
|------|------|------|------|------|------|------|------|------|------|------|------|------|------|
| MAX | 274 | 62.9 | 83.8 | 79.0 | 17.0 | 9.79 | 27.6 | 69.6 | 76.1 | 15.5 | 23.3 | 66.6 | |
| (WY) | 1991 | 1988 | 1988 | 1992 | 1988 | 1988 | 1987 | 1992 | 1987 | 1988 | 1990 | 1989 | |
| MIN | 10.3 | 8.62 | 3.72 | 2.85 | 3.17 | 3.09 | 2.53 | 1.66 | 1.99 | .78 | 4.08 | 5.96 | |
| (WY) | 1989 | 1992 | 1989 | 1989 | 1989 | 1987 | 1989 | 1989 | 1989 | 1989 | 1991 | 1992 | |

SUMMARY STATISTICS

FOR 1992 CALENDAR YEAR

FOR 1993 WATER YEAR

WATER YEARS 1987 - 1993

| | | | |
|--------------------------|---------|--------|------|
| ANNUAL TOTAL | 11580.8 | 7310.1 | |
| ANNUAL MEAN | 31.6 | 20.0 | |
| HIGHEST ANNUAL MEAN | | | 22.1 |
| LOWEST ANNUAL MEAN | | | 36.8 |
| HIGHEST DAILY MEAN | 1580 | 187 | 10.1 |
| LOWEST DAILY MEAN | 4.0 | 3.8 | 1989 |
| ANNUAL SEVEN-DAY MINIMUM | 4.4 | 4.0 | 1991 |
| INSTANTANEOUS PEAK FLOW | | 2810 | 1580 |
| INSTANTANEOUS PEAK STAGE | | 9.58 | 10.1 |
| INSTANTANEOUS LOW FLOW | | | .67 |
| ANNUAL RUNOFF (AC-FT) | 22970 | 14500 | .70 |
| ANNUAL RUNOFF (CFSM) | .73 | .46 | 1989 |
| ANNUAL RUNOFF (INCHES) | 9.90 | 6.25 | 1992 |
| 10 PERCENT EXCEEDS | 55 | 46 | 1989 |
| 50 PERCENT EXCEEDS | 13 | 12 | 1992 |
| 90 PERCENT EXCEEDS | 5.8 | 5.2 | 1990 |

e Estimated

RIO COAMO BASIN

50106500 RIO COAMO NEAR COAMO, PR

WATER-QUALITY RECORDS

LOCATION.--Lat 18°03'52", long 66°22'10", Hydrologic Unit 21010004, on Highway 153 bridge, 0.4 mi (0.6 km) above Rio de la Mina, and 1.8 mi (2.9 km) south of Coamo plaza.

DRAINAGE AREA.--46.0 mi² (119.1 km²).

PERIOD OF RECORD.--Water years 1978 to current year.

WATER-QUALITY RECORDS, WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993

| DATE | TIME | DIS-CHARGE, INST. CUBIC FEET PER SECOND | SPECIFIC CONDUCTANCE (US/CM) | PH WATER WHOLE FIELD (STANDARD UNITS) | TEMPERATURE WATER (DEG C) | TURBIDITY (NTU) | OXYGEN, DIS-SOLVED (MG/L) | OXYGEN, DIS-SOLVED (PER-CENT SATURATION) | OXYGEN DEMAND, CHEMICAL (HIGH LEVEL) (MG/L) | COLIFORM, FECAL, 0.45 UM-MP (COLS./100 ML) | STREPTOCOCCI, FECAL, (COLS. PER 100 ML) |
|-----------|------|---|------------------------------|---------------------------------------|---------------------------|-----------------|---------------------------|--|---|--|---|
| OCT 1992 | | | | | | | | | | | |
| 27... | 1415 | 7.7 | 522 | 7.4 | 30.0 | 1.6 | 6.0 | 79 | <10 | 2700 | 60 |
| DEC 08... | 1210 | 16 | 630 | 7.8 | 26.5 | 2.8 | 8.1 | 106 | <10 | 280 | 300 |
| MAR 1993 | | | | | | | | | | | |
| 01... | 1245 | 11 | 679 | 7.8 | 26.5 | 2.3 | 8.0 | 102 | 10 | 3400 | 90 |
| APR 13... | 1355 | 13 | 683 | 7.1 | 31.5 | 4.0 | 4.8 | 63 | 16 | 400 | 2800 |
| JUN 24... | 1515 | 26 | 580 | 7.6 | 33.0 | 4.2 | 4.0 | 54 | 50 | 460 | 310 |
| AUG 17... | 1530 | 17 | 595 | 7.3 | 32.5 | 2.3 | 3.2 | 60 | <10 | K120 | 30 |

| DATE | HARDNESS TOTAL (MG/L AS CaCO3) | HARDNESS NONCARB WH WAT TOT FLD (MG/L AS CaCO3) | CALCIUM DIS-SOLVED (MG/L AS Ca) | MAGNESIUM, DIS-SOLVED (MG/L AS Mg) | SODIUM, DIS-SOLVED (MG/L AS Na) | SODIUM ADSORPTION RATIO | POTASSIUM, DIS-SOLVED (MG/L AS K) | ALKALINITY WAT WH TOT FET (MG/L AS CaCO3) | SULFIDE TOTAL (MG/L AS S) | SULFATE DIS-SOLVED (MG/L AS SO4) | CHLORIDE, DIS-SOLVED (MG/L AS Cl) |
|-----------|--------------------------------|---|---------------------------------|------------------------------------|---------------------------------|-------------------------|-----------------------------------|---|---------------------------|----------------------------------|-----------------------------------|
| OCT 1992 | | | | | | | | | | | |
| 27... | 180 | 19 | 48 | 16 | 7.4 | 0.2 | 2.7 | 190 | <0.5 | 26 | 39 |
| DEC 18... | -- | -- | -- | -- | -- | -- | -- | 220 | -- | -- | -- |
| MAR 1993 | | | | | | | | | | | |
| 01... | -- | -- | -- | -- | -- | -- | -- | 250 | -- | -- | -- |
| APR 13... | 250 | 0 | 68 | 20 | 41 | 1 | 4.3 | 180 | <0.5 | 42 | 47 |
| JUN 24... | -- | -- | -- | -- | -- | -- | -- | 220 | -- | -- | -- |
| AUG 17... | 120 | 3 | 37 | 5.7 | 9.1 | 0.4 | 1.2 | 160 | -- | 8.1 | 7.4 |

| DATE | FLUORIDE, DIS-SOLVED (MG/L AS F) | SILICA, DIS-SOLVED (MG/L AS SiO2) | SOLIDS, SUM OF CONSTITUENTS, DIS-SOLVED (MG/L) | SOLIDS, DIS-SOLVED (TONS PER DAY) | RESIDUE TOTAL AT 105 DEG. C, SUSPENDED (MG/L) | NITROGEN, NITRATE TOTAL (MG/L AS N) | NITROGEN, NITRITE TOTAL (MG/L AS N) | NITROGEN, NO2+NO3 TOTAL (MG/L AS N) | NITROGEN, AMMONIA TOTAL (MG/L AS N) | NITROGEN, ORGANIC TOTAL (MG/L AS N) |
|-----------|----------------------------------|-----------------------------------|--|-----------------------------------|---|-------------------------------------|-------------------------------------|-------------------------------------|-------------------------------------|-------------------------------------|
| OCT 1992 | | | | | | | | | | |
| 27... | 0.20 | 31 | 210 | 0.38 | <1 | 1.43 | 0.070 | 1.50 | 0.610 | 0.49 |
| DEC 18... | -- | -- | -- | -- | 3 | 1.11 | 0.190 | 1.30 | 0.600 | 1.2 |
| MAR 1993 | | | | | | | | | | |
| 01... | -- | -- | -- | -- | 14 | 1.86 | 0.340 | 2.20 | 0.700 | 0.40 |
| APR 13... | 0.20 | 33 | 303 | 11.0 | 1 | 1.90 | 0.300 | 2.20 | 0.750 | 0.75 |
| JUN 24... | -- | -- | -- | -- | 32 | 1.24 | 0.260 | 1.50 | 0.400 | 2.2 |
| AUG 17... | 0.10 | 21 | 186 | 8.54 | <1 | 1.06 | 0.190 | 1.30 | 0.600 | 1.2 |

K = non-ideal count

RIO COAMO BASIN

50106500 RIO COAMO NEAR COAMO, PR--Continued

WATER-QUALITY RECORDS, WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993

| DATE | NITRO- GEN, AM- MONIA + ORGANIC TOTAL (MG/L AS N) | NITRO- GEN, TOTAL (MG/L AS N) | NITRO- GEN, TOTAL (MG/L AS NO3) | PHOS- PHORUS TOTAL (MG/L AS P) | ARSENIC TOTAL (UG/L AS AS) | BARIUM, TOTAL RECOV- ERABLE (UG/L AS BA) | BORON, TOTAL RECOV- ERABLE (UG/L AS B) | CADMIUM TOTAL RECOV- ERABLE (UG/L AS CD) | CHRO- MIUM, TOTAL RECOV- ERABLE (UG/L AS CR) | COPPER, TOTAL RECOV- ERABLE (UG/L AS CU) |
|-----------|---|---|---|--|-------------------------------------|---|---|---|--|---|
| OCT 1992 | | | | | | | | | | |
| 27... | 1.1 | 2.6 | 12 | 0.310 | <1 | <100 | <100 | <1 | <1 | <10 |
| DEC 08... | 1.8 | 3.1 | 17 | 0.760 | -- | -- | -- | -- | -- | -- |
| MAR 1993 | | | | | | | | | | |
| 01... | 1.1 | 3.3 | 15 | 0.430 | -- | -- | -- | -- | -- | -- |
| APR 13... | 1.5 | 3.7 | 19 | 0.560 | <1 | <100 | 100 | <1 | <1 | <10 |
| JUN 24... | 2.6 | 1.8 | 16 | 0.510 | -- | -- | -- | -- | -- | -- |
| AUG 17... | 1.3 | 2.2 | 18 | 0.440 | -- | -- | -- | -- | -- | -- |

[illegible]

RIO DESCALABRADO BASIN

50108000 RIO DESCALABRADO NEAR LOS LLANOS, PR

LOCATION.--Lat 18°03'08", long 66°25'34", Hydrologic Unit 21010004, at bridge on Highway 14, 1.5 mi (2.4 km) west of Los Llanos, and 5.3 mi (8.5 km) east of Juana Díaz.

DRAINAGE AREA.--12.9 mi² (33.4 km²).

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--1959-65 (annual low-flow measurements only), 1965 (annual maximum discharge), January 1966 to June 1969, July to December 1969 (maximum discharge only), February 1984 to current year.

GAGE.--Water-stage recorder. Elevation of gage is 220 ft (67 m), from topographic map.

REMARKS.--Records poor. Some regulation at low flow by local resident upstream from station.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993
DAILY MEAN VALUES

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|-------|--------|-------|-------|-------|------|-------|-------|-------|-------|-------|------|--------|
| 1 | e54 | 54 | 17 | 5.5 | 5.1 | 2.1 | 1.1 | 8.9 | e9.0 | 4.3 | 2.3 | 1.1 |
| 2 | e40 | e20 | 14 | 5.2 | 4.9 | 1.6 | .94 | 51 | e7.0 | 4.4 | 2.2 | 1.0 |
| 3 | e19 | e17 | 13 | 5.1 | 5.3 | 1.1 | 1.1 | 19 | e6.0 | 5.0 | 2.0 | 1.0 |
| 4 | e9.6 | e18 | 13 | 4.9 | 4.3 | 1.1 | 1.1 | 11 | e5.0 | 4.5 | 2.0 | .96 |
| 5 | e7.5 | e15 | 12 | 4.6 | 4.2 | e1.0 | 1.1 | 8.6 | e4.8 | 3.9 | 2.0 | 1.8 |
| 6 | e25 | e13 | 12 | 4.0 | 4.0 | e1.0 | 1.0 | 6.8 | e4.3 | 3.8 | 2.1 | 29 |
| 7 | e40 | e13 | 11 | 3.7 | 4.1 | 1.1 | .93 | 5.8 | e9.0 | 4.1 | 1.9 | 2.8 |
| 8 | 92 | e12 | 9.9 | 3.8 | 4.0 | 1.2 | .93 | 4.4 | e8.0 | 4.4 | 1.9 | 1.2 |
| 9 | 12 | e12 | 9.9 | 3.8 | 4.0 | 1.2 | .97 | 17 | e5.0 | 4.0 | 1.9 | 1.0 |
| 10 | 186 | e11 | 9.9 | 3.4 | 3.8 | 1.1 | 1.7 | 10 | e4.0 | 4.0 | 1.9 | 11 |
| 11 | 141 | e10 | 9.5 | 3.2 | 3.3 | e1.0 | 1.1 | 4.2 | 4.0 | 17 | 1.8 | 2.4 |
| 12 | e26 | e9.0 | 9.0 | 3.4 | 3.5 | e.98 | 1.4 | 2.9 | 3.7 | 7.1 | 1.8 | 1.5 |
| 13 | 13 | e20 | 9.6 | 3.4 | 3.2 | e.98 | 1.9 | 2.3 | 3.6 | 4.9 | 1.6 | 1.2 |
| 14 | 34 | 8.4 | 10 | 3.4 | 2.8 | e1.0 | 3.6 | e10 | 4.9 | 3.8 | 1.6 | 1.2 |
| 15 | 14 | 55 | 10 | 3.3 | 2.5 | e1.0 | 2.8 | e7.0 | 9.2 | 3.1 | 1.8 | .90 |
| 16 | e232 | 27 | 9.0 | 3.2 | 2.6 | e.98 | 2.0 | e5.0 | 10 | 2.7 | 33 | 1.7 |
| 17 | e56 | 10 | 8.8 | 3.5 | 2.7 | .95 | 1.8 | e3.5 | 5.4 | 2.8 | 4.0 | 4.7 |
| 18 | 25 | 11 | 8.0 | 3.4 | 2.4 | 1.0 | 1.7 | e3.0 | 4.9 | 2.8 | 1.9 | 2.3 |
| 19 | 70 | 6.1 | 7.8 | 3.3 | 3.0 | .95 | 1.7 | e3.5 | 46 | 2.8 | 1.5 | 3.4 |
| 20 | 51 | 25 | 7.2 | 3.5 | 3.0 | .95 | 2.5 | e9.0 | 16 | 3.0 | 1.5 | 88 |
| 21 | 29 | 11 | 7.0 | 3.9 | 2.2 | .84 | 1.6 | e8.0 | 5.8 | 2.8 | 1.2 | 17 |
| 22 | 78 | 6.4 | 6.4 | 4.1 | 1.9 | .87 | 1.1 | e10 | 5.5 | 3.6 | 1.3 | 3.9 |
| 23 | 122 | 5.1 | 6.2 | 4.6 | 1.7 | .91 | 1.1 | e12 | 4.9 | 5.6 | 2.5 | 54 |
| 24 | 116 | 4.9 | 5.9 | 4.0 | 1.9 | .95 | 1.9 | e13 | 4.9 | 4.2 | 1.5 | 8.8 |
| 25 | 66 | 4.6 | 5.9 | 4.4 | 2.0 | 1.4 | 4.3 | e8.5 | 4.8 | 3.3 | 1.5 | 3.7 |
| 26 | 48 | 4.5 | 6.5 | 4.5 | 1.9 | 1.6 | 2.3 | e11 | 4.7 | 2.8 | 1.6 | 1.9 |
| 27 | e42 | 11 | 6.5 | 4.4 | 1.6 | 1.3 | 1.7 | e17 | 4.5 | 3.0 | 2.9 | 1.3 |
| 28 | e38 | 62 | 5.3 | 7.1 | 1.4 | 1.1 | 26 | e16 | 4.4 | 3.0 | 2.6 | 38 |
| 29 | e32 | 11 | 5.2 | 14 | --- | 1.7 | 11 | e10 | 4.4 | 2.7 | 1.3 | 12 |
| 30 | e120 | 90 | 5.6 | 10 | --- | 1.2 | 17 | e11 | 4.6 | 2.6 | 1.4 | 17 |
| 31 | 24 | --- | 5.7 | 7.0 | --- | 1.1 | --- | e12 | --- | 2.5 | 1.1 | --- |
| TOTAL | 1862.1 | 577.0 | 276.8 | 145.6 | 87.3 | 35.26 | 99.37 | 321.4 | 218.3 | 128.5 | 89.6 | 315.76 |
| MEAN | 60.1 | 19.2 | 8.93 | 4.70 | 3.12 | 1.14 | 3.31 | 10.4 | 7.28 | 4.15 | 2.89 | 10.5 |
| MAX | 232 | 90 | 17 | 14 | 5.3 | 2.1 | 26 | 51 | 46 | 17 | 33 | 88 |
| MIN | 7.5 | 4.5 | 5.2 | 3.2 | 1.4 | .84 | .93 | 2.3 | 3.6 | 2.5 | 1.1 | .90 |
| AC-FT | 3690 | 1140 | 549 | 289 | 173 | 70 | 197 | 637 | 433 | 255 | 178 | 626 |
| CFSM | 4.66 | 1.49 | .69 | .36 | .24 | .09 | .26 | .80 | .56 | .32 | .22 | .82 |
| IN. | 5.37 | 1.66 | .80 | .42 | .25 | .10 | .29 | .93 | .63 | .37 | .26 | .91 |

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1966 - 1993, BY WATER YEAR (WY)

| | 1966 | 1967 | 1968 | 1969 | 1970 | 1971 | 1972 | 1973 | 1974 | 1975 | 1976 | 1977 | 1978 | 1979 | 1980 | 1981 | 1982 | 1983 | 1984 | 1985 | 1986 | 1987 | 1988 | 1989 | 1990 | 1991 | 1992 | 1993 |
|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|
| MEAN | 31.8 | 17.4 | 5.86 | 5.65 | 2.12 | 1.13 | 3.87 | 15.5 | 5.35 | 2.53 | 3.46 | 13.1 | | | | | | | | | | | | | | | | |
| MAX | 117 | 41.0 | 24.5 | 36.4 | 7.57 | 3.49 | 18.8 | 62.2 | 25.2 | 10.5 | 9.11 | 40.2 | | | | | | | | | | | | | | | | |
| (WY) | 1986 | 1985 | 1988 | 1992 | 1986 | 1986 | 1985 | 1985 | 1987 | 1991 | 1988 | 1985 | | | | | | | | | | | | | | | | |
| MIN | 2.02 | 2.17 | .19 | .057 | .020 | .012 | .000 | .032 | .000 | .000 | .19 | .063 | | | | | | | | | | | | | | | | |
| (WY) | 1968 | 1992 | 1968 | 1968 | 1968 | 1968 | 1968 | 1968 | 1967 | 1967 | 1990 | 1967 | | | | | | | | | | | | | | | | |

SUMMARY STATISTICS

FOR 1992 CALENDAR YEAR

FOR 1993 WATER YEAR

WATER YEARS 1966 - 1993

| | | | |
|--------------------------|---------|---------|-------|
| ANNUAL TOTAL | 6857.25 | 4156.99 | |
| ANNUAL MEAN | 18.7 | 11.4 | 9.57 |
| HIGHEST ANNUAL MEAN | | | 18.4 |
| LOWEST ANNUAL MEAN | | | 1.89 |
| HIGHEST DAILY MEAN | 789 | May 26 | 2600 |
| LOWEST DAILY MEAN | .63 | Jan 26 | .00 |
| ANNUAL SEVEN-DAY MINIMUM | .75 | Jan 22 | .00 |
| INSTANTANEOUS PEAK FLOW | | | 30000 |
| INSTANTANEOUS PEAK STAGE | | | 24.37 |
| ANNUAL RUNOFF (AC-FT) | 13600 | 8250 | 6930 |
| ANNUAL RUNOFF (CFSM) | 1.45 | .88 | .74 |
| ANNUAL RUNOFF (INCHES) | 19.77 | 11.99 | 10.07 |
| 10 PERCENT EXCEEDS | 41 | 25 | 14 |
| 50 PERCENT EXCEEDS | 4.8 | 4.3 | 1.5 |
| 90 PERCENT EXCEEDS | 1.2 | 1.1 | .03 |

e Estimated

RIO JACAGUAS BASIN

50110900 RIO TOA VACA ABOVE LAGO TOA VACA, PR

LOCATION.--Lat 18°07'37", long 66°27'24", Hydrologic Unit 21010004, on right bank, off a dirt road about 0.3 mi (0.5 km) from road 553, 2.4 mi (3.9 km) southeast from Villalba plaza, and 0.2 mi (0.3 km) downstream from confluence with Quebrada Limón.

DRAINAGE AREA.--7.64 mi² (19.79 km²).

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--April 1989 to current year.

GAGE.--Water stage recorder. Elevation of gage is 525 ft (160 m), from topographic map.

REMARKS.--Records fair. Gage-height and precipitation satellite telemetry at station.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993
DAILY MEAN VALUES

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|-------|------|------|-------|-------|-------|-------|-------|-------|------|-------|-------|-------|
| 1 | 59 | 36 | 35 | 7.6 | 5.5 | 3.5 | 4.4 | 35 | 26 | 9.3 | 5.5 | 8.2 |
| 2 | 23 | 33 | 25 | 7.1 | 5.1 | 3.3 | 4.3 | 34 | 21 | 9.1 | 5.5 | 7.1 |
| 3 | 12 | 26 | 23 | 7.3 | 6.1 | 3.2 | 5.5 | 38 | 18 | 10 | 5.5 | 5.9 |
| 4 | 11 | 23 | 18 | 7.3 | 4.8 | 3.4 | 4.8 | 22 | 16 | 9.9 | 5.5 | 24 |
| 5 | 49 | 20 | 17 | 7.1 | 4.6 | 3.3 | 4.9 | 15 | 15 | 9.3 | 5.5 | 95 |
| 6 | 160 | 17 | 14 | 6.8 | 4.4 | 3.2 | 5.1 | 11 | 13 | 8.5 | 6.0 | 52 |
| 7 | 86 | 16 | 13 | 7.4 | 4.2 | 3.1 | 5.7 | 8.8 | 13 | 9.9 | 5.9 | 43 |
| 8 | 68 | 15 | 12 | 7.5 | 4.1 | 3.4 | 5.8 | 8.1 | 33 | 10 | 5.9 | 25 |
| 9 | 48 | 14 | 12 | 6.8 | 4.1 | 3.3 | 12 | 34 | 16 | 10 | 6.0 | 15 |
| 10 | 49 | 13 | 11 | 8.4 | 4.1 | 3.2 | 11 | 16 | 12 | 11 | 6.3 | 27 |
| 11 | 50 | 12 | 10 | 10 | 4.0 | 3.2 | 17 | 11 | 12 | 29 | 6.2 | 19 |
| 12 | 34 | 12 | 9.5 | 10 | 4.3 | 3.2 | 20 | 8.8 | 12 | 24 | 6.3 | 11 |
| 13 | 26 | 14 | 11 | 9.1 | 4.3 | 3.4 | 57 | 8.3 | 11 | 23 | 6.2 | 7.9 |
| 14 | 50 | 12 | 21 | 7.0 | 4.3 | 3.2 | 37 | 30 | 12 | 27 | 6.0 | 6.6 |
| 15 | 54 | 13 | 13 | 7.5 | 6.3 | 3.0 | 34 | 16 | 15 | 15 | 6.6 | 5.5 |
| 16 | 52 | 31 | 9.5 | 7.2 | 4.2 | 3.0 | 35 | 12 | 18 | 10 | 49 | 7.1 |
| 17 | 40 | 14 | 9.8 | 7.5 | 4.0 | 3.1 | 19 | 9.9 | 12 | 8.1 | 16 | 14 |
| 18 | 32 | 11 | 8.8 | 8.0 | 3.6 | 3.0 | 17 | 9.1 | 11 | 7.4 | 8.1 | 19 |
| 19 | 32 | 10 | 7.7 | 7.8 | 3.8 | 2.9 | 12 | 8.5 | 50 | 8.1 | 7.3 | 14 |
| 20 | 31 | 45 | 7.6 | 7.3 | 4.2 | 2.9 | 11 | 10 | 60 | 6.7 | 6.1 | 143 |
| 21 | 25 | 49 | 7.3 | 7.3 | 3.8 | 3.0 | 10 | 30 | 31 | 6.1 | 5.7 | 25 |
| 22 | 25 | 32 | 7.3 | 7.0 | 3.6 | 3.0 | 7.2 | 22 | 22 | 26 | 5.4 | 7.5 |
| 23 | 132 | 21 | 7.2 | 7.1 | 3.6 | 2.9 | 6.6 | 35 | 17 | 18 | 5.9 | 13 |
| 24 | 65 | 17 | 7.2 | 6.8 | 3.7 | 3.3 | 17 | 42 | 14 | 11 | 5.6 | 10 |
| 25 | 44 | 14 | 6.8 | 6.7 | 3.6 | 4.3 | 15 | 26 | 12 | 8.0 | 5.2 | 6.7 |
| 26 | 33 | 13 | 14 | 6.4 | 3.4 | 3.7 | 8.2 | 25 | 11 | 12 | 5.4 | 4.7 |
| 27 | 32 | 13 | 14 | 6.2 | 3.7 | 4.0 | 6.6 | 58 | 11 | 10 | 27 | 3.3 |
| 28 | 34 | 66 | 9.6 | 16 | 3.5 | 4.2 | 123 | 53 | 12 | 6.7 | 50 | 16 |
| 29 | 27 | 78 | 8.3 | 31 | --- | 4.2 | 197 | 32 | 11 | 5.9 | 32 | 6.9 |
| 30 | 52 | 55 | 7.6 | 12 | --- | 5.6 | 75 | 35 | 10 | 5.8 | 15 | 9.7 |
| 31 | 42 | --- | 7.7 | 6.6 | --- | 5.6 | --- | 38 | --- | 5.5 | 12 | --- |
| TOTAL | 1477 | 745 | 384.9 | 267.8 | 118.9 | 107.6 | 788.1 | 741.5 | 547 | 370.3 | 344.6 | 652.1 |
| MEAN | 47.6 | 24.8 | 12.4 | 8.64 | 4.25 | 3.47 | 26.3 | 23.9 | 18.2 | 11.9 | 11.1 | 21.7 |
| MAX | 160 | 78 | 35 | 31 | 6.3 | 5.6 | 197 | 58 | 60 | 29 | 50 | 143 |
| MIN | 11 | 10 | 6.8 | 6.2 | 3.4 | 2.9 | 4.3 | 8.1 | 10 | 5.5 | 5.2 | 3.3 |
| AC-FT | 2930 | 1480 | 763 | 531 | 236 | 213 | 1560 | 1470 | 1080 | 734 | 684 | 1290 |
| CFSM | 3.36 | 1.75 | .87 | .61 | .30 | .24 | 1.85 | 1.68 | 1.28 | .84 | .78 | 1.53 |
| IN. | 3.87 | 1.95 | 1.01 | .70 | .31 | .28 | 2.06 | 1.94 | 1.43 | .97 | .90 | 1.71 |

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1989 - 1993, BY WATER YEAR (WY)

| | MEAN | MAX | (WY) | MIN | (WY) |
|------|------|------|------|------|------|
| 1989 | 52.6 | 109 | 1991 | 4.61 | 1992 |
| 1990 | 19.8 | 40.1 | 1991 | 2.19 | 1992 |
| 1991 | 7.55 | 12.4 | 1993 | 1.42 | 1992 |
| 1992 | 15.0 | 43.1 | 1992 | 3.75 | 1990 |
| 1993 | 3.82 | 4.75 | 1991 | 2.37 | 1990 |
| 1994 | 3.41 | 4.71 | 1991 | 1.67 | 1990 |
| 1995 | 10.4 | 26.3 | 1993 | 1.46 | 1990 |
| 1996 | 16.5 | 42.2 | 1992 | 1.42 | 1990 |
| 1997 | 12.3 | 35.4 | 1992 | 1.23 | 1990 |
| 1998 | 8.30 | 14.4 | 1992 | .71 | 1990 |
| 1999 | 7.79 | 11.9 | 1989 | 2.74 | 1990 |
| 2000 | 24.8 | 46.2 | 1989 | 6.63 | 1992 |

SUMMARY STATISTICS

FOR 1992 CALENDAR YEAR

FOR 1993 WATER YEAR

WATER YEARS 1989 - 1993

| | | | |
|--------------------------|---------|--------|-------|
| ANNUAL TOTAL | 7750.66 | 6544.8 | |
| ANNUAL MEAN | 21.2 | 17.9 | 15.3 |
| HIGHEST ANNUAL MEAN | | | 18.2 |
| LOWEST ANNUAL MEAN | | | 10.4 |
| HIGHEST DAILY MEAN | 676 | 197 | 676 |
| LOWEST DAILY MEAN | .85 | 2.9 | .45 |
| ANNUAL SEVEN-DAY MINIMUM | 2.3 | 3.0 | .61 |
| INSTANTANEOUS PEAK FLOW | | 2160 | 8700 |
| INSTANTANEOUS PEAK STAGE | | 8.09 | 13.24 |
| INSTANTANEOUS LOW FLOW | | 2.7 | .44 |
| ANNUAL RUNOFF (AC-FT) | 15370 | 12980 | 11090 |
| ANNUAL RUNOFF (CFSM) | 1.49 | 1.26 | 1.08 |
| ANNUAL RUNOFF (INCHES) | 20.30 | 17.15 | 14.65 |
| 10 PERCENT EXCEEDS | 44 | 41 | 35 |
| 50 PERCENT EXCEEDS | 10 | 10 | 4.3 |
| 90 PERCENT EXCEEDS | 2.8 | 3.9 | 1.2 |

RIO JACAGUAS BASIN

50110900 RIO TOA VACA ABOVE LAGO TOA VACA, PR--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORDS.-- Water years 1988 to current year.

PERIOD OF DAILY RECORD.--

SUSPENDED-SEDIMENT DISCHARGE: April 1988 to September 1993.

INSTRUMENTATION.-- Automatic sediment sampler.

EXTREMES FOR PERIOD OF DAILY RECORD.--

SEDIMENT CONCENTRATION: Maximum daily mean, 3,170 mg/L January 05, 1992; Minimum daily mean, 1 mg/L several days.

SEDIMENT LOADS: Maximum daily mean, 18,300 tons (16,600 tonnes) January 05, 1992; Minimum daily mean, 0.0 ton (0.0 tonne) several days.

EXTREMES FOR WATER YEAR 1993.--

SEDIMENT CONCENTRATION: Maximum daily mean, 1,270 mg/L Oct. 06, 1992; Minimum daily mean, 4 mg/L several days.

SEDIMENT LOADS: Maximum daily mean, 2,680 tons (2,430 tonnes) Sept. 20, 1993; Minimum daily mean, 0.04 ton (0.03 tonne) Sept. 27, 1993.

SEDIMENT DISCHARGE, SUSPENDED (TONS/DAY), WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993

| DAY | MEAN DISCHARGE (CFS) | MEAN CONCENTRATION (MG/L) | SEDIMENT DISCHARGE (TONS/DAY) | MEAN DISCHARGE (CFS) | MEAN CONCENTRATION (MG/L) | SEDIMENT DISCHARGE (TONS/DAY) | MEAN DISCHARGE (CFS) | MEAN CONCENTRATION (MG/L) | SEDIMENT DISCHARGE (TONS/DAY) |
|---------|----------------------------|---------------------------------|-------------------------------------|----------------------------|---------------------------------|-------------------------------------|----------------------------|---------------------------------|-------------------------------------|
| OCTOBER | | | NOVEMBER | | | DECEMBER | | | |
| 1 | 59 | 561 | 272 | 36 | 222 | 25 | 35 | 187 | 18 |
| 2 | 23 | 108 | 8.5 | 33 | 168 | 15 | 25 | 104 | 7.1 |
| 3 | 12 | 32 | 1.1 | 26 | 109 | 7.9 | 23 | 108 | 8.9 |
| 4 | 11 | 35 | 1.8 | 23 | 82 | 5.3 | 18 | 63 | 3.3 |
| 5 | 49 | 591 | 278 | 20 | 55 | 2.8 | 17 | 45 | 2.0 |
| 6 | 160 | 1360 | 2430 | 17 | 30 | 1.4 | 14 | 33 | 1.3 |
| 7 | 86 | 957 | 325 | 16 | 20 | .87 | 13 | 17 | .62 |
| 8 | 68 | 692 | 188 | 15 | 20 | .79 | 12 | 10 | .31 |
| 9 | 48 | 202 | 28 | 14 | 20 | .74 | 12 | 11 | .34 |
| 10 | 49 | 404 | 102 | 13 | 19 | .67 | 11 | 15 | .42 |
| 11 | 50 | 425 | 90 | 12 | 19 | .62 | 10 | 17 | .43 |
| 12 | 34 | 210 | 22 | 12 | 20 | .61 | 9.5 | 14 | .34 |
| 13 | 26 | 73 | 5.6 | 14 | 46 | 3.2 | 11 | 33 | 2.6 |
| 14 | 50 | 560 | 182 | 12 | 35 | 1.2 | 21 | 153 | 29 |
| 15 | 54 | 142 | 27 | 13 | 36 | 1.4 | 13 | 36 | 1.3 |
| 16 | 52 | 379 | 122 | 31 | 249 | 80 | 9.5 | 14 | .35 |
| 17 | 40 | 137 | 16 | 14 | 56 | 2.1 | 9.8 | 12 | .29 |
| 18 | 32 | 53 | 4.9 | 11 | 36 | 1.1 | 8.8 | 11 | .25 |
| 19 | 32 | 146 | 15 | 10 | 23 | .64 | 7.7 | 9 | .19 |
| 20 | 31 | 128 | 12 | 45 | 419 | 97 | 7.6 | 7 | .15 |
| 21 | 25 | 49 | 3.4 | 49 | 378 | 92 | 7.3 | 7 | .14 |
| 22 | 25 | 20 | 1.6 | 32 | 172 | 16 | 7.3 | 7 | .15 |
| 23 | 132 | 1230 | 2090 | 21 | 95 | 6.2 | 7.2 | 8 | .16 |
| 24 | 65 | 529 | 109 | 17 | 47 | 2.1 | 7.2 | 8 | .14 |
| 25 | 44 | 289 | 36 | 14 | 33 | 1.2 | 6.8 | 8 | .14 |
| 26 | 33 | 216 | 20 | 13 | 25 | .85 | 14 | 65 | 6.8 |
| 27 | 32 | 245 | 26 | 13 | 22 | .87 | 14 | 34 | 1.6 |
| 28 | 34 | 170 | 17 | 66 | 656 | 177 | 9.6 | 8 | .21 |
| 29 | 27 | 141 | 13 | 78 | 830 | 301 | 8.3 | 10 | .21 |
| 30 | 52 | 527 | 134 | 55 | 428 | 70 | 7.6 | 10 | .21 |
| 31 | 42 | 292 | 40 | --- | --- | --- | 7.7 | 11 | .21 |
| TOTAL | 1477 | --- | 6620.9 | 745 | --- | 915.56 | 384.9 | --- | 87.16 |

RIO JACAGUAS BASIN

50110900 RIO TOA VACA ABOVE LAGO TOA VACA, PR--Continued

SEDIMENT DISCHARGE, SUSPENDED (TONS/DAY), WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993

| DAY | MEAN DISCHARGE (CFS) | MEAN CONCEN- TRATION (MG/L) | SEDIMENT DISCHARGE (TONS/DAY) | MEAN DISCHARGE (CFS) | MEAN CONCEN- TRATION (MG/L) | SEDIMENT DISCHARGE (TONS/DAY) | MEAN DISCHARGE (CFS) | MEAN CONCEN- TRATION (MG/L) | SEDIMENT DISCHARGE (TONS/DAY) |
|---------|----------------------------|--------------------------------------|-------------------------------------|----------------------------|--------------------------------------|-------------------------------------|----------------------------|--------------------------------------|-------------------------------------|
| JANUARY | | | FEBRUARY | | | MARCH | | | |
| 1 | 7.6 | 12 | .23 | 5.5 | 10 | .14 | 3.5 | 16 | .15 |
| 2 | 7.1 | 17 | .31 | 5.1 | 9 | .12 | 3.3 | 22 | .20 |
| 3 | 7.3 | 20 | .38 | 6.1 | 9 | .14 | 3.2 | 26 | .23 |
| 4 | 7.3 | 20 | .38 | 4.8 | 9 | .12 | 3.4 | 25 | .22 |
| 5 | 7.1 | 21 | .38 | 4.6 | 8 | .10 | 3.3 | 21 | .19 |
| 6 | 6.8 | 21 | .38 | 4.4 | 7 | .08 | 3.2 | 19 | .17 |
| 7 | 7.4 | 21 | .41 | 4.2 | 7 | .08 | 3.1 | 19 | .17 |
| 8 | 7.5 | 21 | .42 | 4.1 | 7 | .08 | 3.4 | 23 | .20 |
| 9 | 6.8 | 21 | .37 | 4.1 | 7 | .08 | 3.3 | 27 | .24 |
| 10 | 8.4 | 19 | .38 | 4.1 | 7 | .08 | 3.2 | 31 | .27 |
| 11 | 10 | 17 | .39 | 4.0 | 7 | .08 | 3.2 | 32 | .27 |
| 12 | 10 | 14 | .37 | 4.3 | 7 | .08 | 3.2 | 25 | .21 |
| 13 | 9.1 | 11 | .28 | 4.3 | 7 | .08 | 3.4 | 15 | .13 |
| 14 | 7.0 | 10 | .18 | 4.3 | 7 | .08 | 3.2 | 16 | .13 |
| 15 | 7.5 | 9 | .18 | 6.3 | 17 | .82 | 3.0 | 24 | .19 |
| 16 | 7.2 | 9 | .18 | 4.2 | 12 | .14 | 3.0 | 28 | .22 |
| 17 | 7.5 | 9 | .18 | 4.0 | 14 | .16 | 3.1 | 26 | .20 |
| 18 | 8.0 | 10 | .19 | 3.6 | 15 | .15 | 3.0 | 21 | .16 |
| 19 | 7.8 | 10 | .20 | 3.8 | 17 | .16 | 2.9 | 15 | .11 |
| 20 | 7.3 | 10 | .20 | 4.2 | 19 | .18 | 2.9 | 10 | .08 |
| 21 | 7.3 | 10 | .20 | 3.8 | 20 | .19 | 3.0 | 8 | .07 |
| 22 | 7.0 | 10 | .20 | 3.6 | 20 | .19 | 3.0 | 7 | .06 |
| 23 | 7.1 | 10 | .18 | 3.6 | 20 | .18 | 2.9 | 8 | .07 |
| 24 | 6.8 | 9 | .16 | 3.7 | 17 | .16 | 3.3 | 10 | .10 |
| 25 | 6.7 | 9 | .16 | 3.6 | 14 | .13 | 4.3 | 10 | .11 |
| 26 | 6.4 | 9 | .16 | 3.4 | 11 | .11 | 3.7 | 9 | .09 |
| 27 | 6.2 | 9 | .16 | 3.7 | 10 | .10 | 4.0 | 6 | .07 |
| 28 | 16 | 223 | .41 | 3.5 | 11 | .11 | 4.2 | 5 | .06 |
| 29 | 31 | 202 | .35 | --- | --- | --- | 4.2 | 7 | .08 |
| 30 | 12 | 33 | 1.3 | --- | --- | --- | 5.6 | 9 | .14 |
| 31 | 6.6 | 13 | .23 | --- | --- | --- | 5.6 | 10 | .16 |
| TOTAL | 267.8 | --- | 84.74 | 118.9 | --- | 4.12 | 107.6 | --- | 4.75 |

RIO JACAGUAS BASIN

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50110900 RIO TOA VACA ABOVE LAGO TOA VACA, PR--Continued

SEDIMENT DISCHARGE, SUSPENDED (TONS/DAY), WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993

| DAY | MEAN DISCHARGE (CFS) | MEAN CONCEN- TRATION (MG/L) | SEDIMENT DISCHARGE (TONS/DAY) | MEAN DISCHARGE (CFS) | MEAN CONCEN- TRATION (MG/L) | SEDIMENT DISCHARGE (TONS/DAY) | MEAN DISCHARGE (CFS) | MEAN CONCEN- TRATION (MG/L) | SEDIMENT DISCHARGE (TONS/DAY) |
|-------|----------------------------|--------------------------------------|-------------------------------------|----------------------------|--------------------------------------|-------------------------------------|----------------------------|--------------------------------------|-------------------------------------|
| APRIL | | | | MAY | | | JUNE | | |
| 1 | 4.4 | 5 | .06 | 35 | 11 | 1.0 | 26 | 20 | 1.5 |
| 2 | 4.3 | 6 | .07 | 34 | 145 | 30 | 21 | 21 | 1.2 |
| 3 | 5.5 | 9 | .13 | 38 | 185 | 22 | 18 | 24 | 1.1 |
| 4 | 4.8 | 18 | .23 | 22 | 27 | 1.7 | 16 | 28 | 1.2 |
| 5 | 4.9 | 28 | .37 | 15 | 19 | .75 | 15 | 28 | 1.1 |
| 6 | 5.1 | 23 | .32 | 11 | 23 | .66 | 13 | 25 | .91 |
| 7 | 5.7 | 13 | .19 | 8.8 | 21 | .50 | 13 | 25 | .88 |
| 8 | 5.8 | 11 | .16 | 8.1 | 14 | .30 | 33 | 311 | 84 |
| 9 | 12 | 58 | 5.2 | 34 | 335 | 124 | 16 | 44 | 1.9 |
| 10 | 11 | 37 | 1.9 | 16 | 40 | 2.1 | 12 | 32 | 1.1 |
| 11 | 17 | 93 | 11 | 11 | 15 | .39 | 12 | 30 | .98 |
| 12 | 20 | 84 | 6.6 | 8.8 | 20 | .48 | 12 | 28 | .88 |
| 13 | 57 | 1030 | 375 | 8.3 | 16 | .35 | 11 | 25 | .70 |
| 14 | 37 | 691 | 78 | 30 | 201 | 32 | 12 | 30 | .99 |
| 15 | 34 | 676 | 91 | 16 | 25 | 1.2 | 15 | 49 | 2.6 |
| 16 | 35 | 206 | 23 | 12 | 7 | .23 | 18 | 48 | 2.9 |
| 17 | 19 | 70 | 4.3 | 9.9 | 10 | .24 | 12 | 17 | .49 |
| 18 | 17 | 54 | 2.8 | 9.1 | 10 | .22 | 11 | 25 | .70 |
| 19 | 12 | 24 | .72 | 8.5 | 9 | .20 | 50 | 411 | 75 |
| 20 | 11 | 13 | .36 | 10 | 15 | .35 | 60 | 294 | 60 |
| 21 | 10 | 13 | .36 | 30 | 225 | 58 | 31 | 29 | 2.5 |
| 22 | 7.2 | 21 | .41 | 22 | 32 | 2.3 | 22 | 25 | 1.4 |
| 23 | 6.6 | 22 | .36 | 35 | 168 | 38 | 17 | 21 | .91 |
| 24 | 17 | 107 | 14 | 42 | 73 | 9.8 | 14 | 20 | .73 |
| 25 | 15 | 44 | 2.0 | 26 | 15 | 1.1 | 12 | 26 | .81 |
| 26 | 8.2 | 17 | .37 | 25 | 16 | 1.0 | 11 | 37 | 1.0 |
| 27 | 6.6 | 14 | .25 | 58 | 624 | 343 | 11 | 49 | 1.5 |
| 28 | 123 | 1230 | 709 | 53 | 455 | 121 | 12 | 56 | 1.7 |
| 29 | 197 | 1040 | 974 | 32 | 33 | 3.2 | 11 | 50 | 1.4 |
| 30 | 75 | 47 | 12 | 35 | 177 | 45 | 10 | 36 | .95 |
| 31 | --- | --- | --- | 38 | 50 | 6.0 | --- | --- | --- |
| TOTAL | 788.1 | --- | 2314.16 | 741.5 | --- | 847.07 | 547 | --- | 253.03 |

RIO JACAGUAS BASIN

50110900 RIO TOA VACA ABOVE LAGO TOA VACA, PR--Continued

SEDIMENT DISCHARGE, SUSPENDED (TONS/DAY), WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993

| DAY | MEAN DISCHARGE (CFS) | MEAN CONCEN- TRATION (MG/L) | SEDIMENT DISCHARGE (TONS/DAY) | MEAN DISCHARGE (CFS) | MEAN CONCEN- TRATION (MG/L) | SEDIMENT DISCHARGE (TONS/DAY) | MEAN DISCHARGE (CFS) | MEAN CONCEN- TRATION (MG/L) | SEDIMENT DISCHARGE (TONS/DAY) |
|-------|----------------------------|--------------------------------------|-------------------------------------|----------------------------|--------------------------------------|-------------------------------------|----------------------------|--------------------------------------|-------------------------------------|
| JULY | | | AUGUST | | | SEPTEMBER | | | |
| 1 | 9.3 | 26 | .64 | 5.5 | 6 | .10 | 8.2 | 11 | .23 |
| 2 | 9.1 | 23 | .56 | 5.5 | 8 | .12 | 7.1 | 15 | .26 |
| 3 | 10 | 23 | .58 | 5.5 | 8 | .12 | 5.9 | 20 | .30 |
| 4 | 9.9 | 16 | .41 | 5.5 | 8 | .12 | 24 | 186 | 35 |
| 5 | 9.3 | 10 | .21 | 5.5 | 5 | .08 | 95 | 949 | 950 |
| 6 | 8.5 | 6 | .14 | 6.0 | 4 | .06 | 52 | 348 | 70 |
| 7 | 9.9 | 5 | .13 | 5.9 | 4 | .07 | 43 | 226 | 27 |
| 8 | 10 | 8 | .21 | 5.9 | 5 | .08 | 25 | 49 | 3.5 |
| 9 | 10 | 14 | .37 | 6.0 | 6 | .11 | 15 | 35 | 1.5 |
| 10 | 11 | 19 | .53 | 6.3 | 6 | .10 | 27 | 174 | 26 |
| 11 | 29 | 145 | 19 | 6.2 | 6 | .10 | 19 | 68 | 4.5 |
| 12 | 24 | 43 | 3.4 | 6.3 | 6 | .09 | 11 | 15 | .45 |
| 13 | 23 | 12 | .69 | 6.2 | 6 | .10 | 7.9 | 9 | .18 |
| 14 | 27 | 10 | .82 | 6.0 | 6 | .11 | 6.6 | 6 | .12 |
| 15 | 15 | 7 | .26 | 6.6 | 9 | .17 | 5.5 | 6 | .09 |
| 16 | 10 | 4 | .10 | 49 | 23 | 3.9 | 7.1 | 9 | .18 |
| 17 | 8.1 | 5 | .11 | 16 | 17 | .79 | 14 | 70 | 7.6 |
| 18 | 7.4 | 8 | .16 | 8.1 | 8 | .18 | 19 | 125 | 19 |
| 19 | 8.1 | 10 | .22 | 7.3 | 5 | .10 | 14 | 48 | 3.0 |
| 20 | 6.7 | 11 | .18 | 6.1 | 8 | .13 | 143 | 945 | 2680 |
| 21 | 6.1 | 14 | .21 | 5.7 | 7 | .11 | 25 | 142 | 14 |
| 22 | 26 | 24 | 2.4 | 5.4 | 7 | .10 | 7.5 | 18 | .45 |
| 23 | 18 | 12 | .65 | 5.9 | 7 | .10 | 13 | 70 | 6.8 |
| 24 | 11 | 11 | .28 | 5.6 | 6 | .09 | 10 | 53 | 2.3 |
| 25 | 8.0 | 16 | .29 | 5.2 | 7 | .10 | 6.7 | 11 | .16 |
| 26 | 12 | 15 | .41 | 5.4 | 7 | .11 | 4.7 | 8 | .10 |
| 27 | 10 | 10 | .28 | 27 | 167 | 40 | 3.3 | 4 | .04 |
| 28 | 6.7 | 8 | .14 | 50 | 369 | 119 | 16 | 194 | 66 |
| 29 | 5.9 | 5 | .07 | 32 | 84 | 8.5 | 6.9 | 23 | 1.3 |
| 30 | 5.8 | 4 | .05 | 15 | 19 | .78 | 9.7 | 41 | 2.6 |
| 31 | 5.5 | 4 | .06 | 12 | 9 | .30 | --- | --- | --- |
| TOTAL | 370.3 | --- | 33.56 | 344.6 | --- | 175.82 | 652.1 | --- | 3922.66 |
| YEAR | 6544.8 | | 15263.53 | | | | | | |

RIO JACAGUAS BASIN

50110900 RIO TOA VACA ABOVE LAGO TOA VACA, PR--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993

PARTICLE-SIZE DISTRIBUTION OF SUSPENDED SEDIMENT

| DATE | TIME | DIS- CHARGE, INST. CUBIC FEET PER SECOND | SEDI- MENT, SUS- PENDEDED (MG/L) | SEDI- MENT, DIS- CHARGE, SUS- PENDEDED (T/DAY) | SED. SUSP. FALL DIAM. PERCENT FINER THAN .002 MM | SED. SUSP. FALL DIAM. PERCENT FINER THAN .004 MM | SED. SUSP. FALL DIAM. PERCENT FINER THAN .008 MM |
|----------|------|--|--|--|---|---|---|
| | | | | | | | |
| OCT 1992 | | | | | | | |
| 23... | 1730 | 1250 | 14000 | 4720 | 11 | 13 | 15 |
| APR 1993 | | | | | | | |
| 13... | 1450 | 204 | 3700 | 2040 | 43 | 47 | 61 |
| 13... | 1600 | 208 | 3380 | 1900 | 41 | 47 | 56 |
| 28... | 2155 | 159 | 21900 | 9400 | 16 | 21 | 25 |
| 29... | 1535 | 594 | 13600 | 21800 | 14 | 17 | 18 |
| SEP | | | | | | | |
| 20... | 1630 | 2140 | 3880 | 22400 | 40 | 47 | 54 |

| DATE | SED. SUSP. FALL DIAM. PERCENT FINER THAN .016 MM | SED. SUSP. FALL DIAM. PERCENT FINER THAN .031 MM | SED. SUSP. SIEVE DIAM. PERCENT FINER THAN .062 MM | SED. SUSP. SIEVE DIAM. PERCENT FINER THAN .125 MM | SED. SUSP. SIEVE DIAM. PERCENT FINER THAN .250 MM | SED. SUSP. SIEVE DIAM. PERCENT FINER THAN .500 MM | SED. SUSP. SIEVE DIAM. PERCENT FINER THAN 1.00 MM |
|----------|---|---|--|--|--|--|--|
| | | | | | | | |
| OCT 1992 | | | | | | | |
| 23... | 19 | 23 | 29 | 41 | 59 | 85 | 97 |
| APR 1993 | | | | | | | |
| 13... | 72 | 81 | 91 | 96 | 99 | 99.7 | 99.9 |
| 13... | 69 | 79 | 88 | 94 | 98 | 99.5 | 99.8 |
| 28... | 31 | 39 | 47 | 59 | 76 | 92 | 99 |
| 29... | 23 | 30 | 40 | 56 | 74 | 91 | 99 |
| SEP | | | | | | | |

RIO JACAGUAS BASIN

50110900 RIO TOA VACA ABOVE LAGO TOA VACA, PR--Continued
 WATER QUALITY DATA, WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993
 SILT AND CLAY PERCENT OF SUSPENDED SEDIMENT

| DATE | TIME | STREAM- FLOW, INSTAN- TANEOUS (CFS) | SEDI- MENT, SUS- PENDEED (MG/L) | SEDI- MENT, DIS- CHARGE, SUS- PENDEED (T/DAY) | SED. SUSP. SIEVE DIAM. PERCENT FINER THAN .062 MM |
|----------|------|---|---|---|--|
| OCT 1992 | | | | | |
| 23... | 1630 | 200 | 8110 | 4380 | 66 |
| ABR 1993 | | | | | |
| 13... | 1415 | 192 | 6230 | 3230 | 50 |
| 28... | 1600 | 104 | 2100 | 590 | 76 |
| 28... | 1630 | 120 | 1430 | 463 | 83 |
| 28... | 1855 | 342 | 2640 | 2440 | 75 |
| 29... | 1650 | 816 | 1130 | 2490 | 90 |
| MAY | | | | | |
| 21... | 1515 | 168 | 1850 | 839 | 80 |
| AUG | | | | | |
| 27... | 1700 | 73 | 1120 | 221 | 97 |

RIO JACAGUAS BASIN

50111500 RIO JACAGUAS AT JUANA DIAZ, PR

LOCATION.--Lat 18°03'16", long 66°30'40", Hydrologic Unit 21010004, on Highway 14 bridge, 0.4 mi (0.6 km) west of Juana Diaz plaza, and 4.0 mi (6.4 km) downstream from Lago Guayabal.

DRAINAGE AREA.--49.8 mi² (129.0 km²).

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--March 1984 to current year.

GAGE.--Water-stage recorder and crest-stage gage. Elevation of gage is 131 ft (40 m), from topographic map.

REMARKS.--Records poor. Flow regulation from Lago Guayabal. Gage-height and precipitation satellite telemetry at station.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993
DAILY MEAN VALUES

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|-------|--------|------|------|-------|-------|-------|-------|------|------|------|-------|------|
| 1 | 35 | 151 | e150 | 37 | 65 | 5.3 | 2.2 | 141 | 62 | 52 | 13 | e24 |
| 2 | 20 | 118 | 113 | 29 | 46 | 5.0 | 2.3 | 176 | 104 | 48 | e10 | e31 |
| 3 | 10 | 92 | 103 | 30 | 26 | 4.4 | 2.2 | 111 | 74 | 60 | e9.8 | e28 |
| 4 | 8.1 | 65 | 104 | 27 | 21 | 4.3 | 2.3 | 40 | 68 | 57 | e9.0 | e28 |
| 5 | 14 | 52 | 95 | 22 | 13 | 4.2 | 2.5 | 31 | 65 | 27 | e8.0 | e69 |
| 6 | 348 | 50 | 78 | 20 | 9.8 | 4.1 | 4.0 | 25 | 47 | 24 | e7.0 | e49 |
| 7 | 354 | 44 | 66 | 13 | 6.7 | 5.3 | 6.0 | 28 | 38 | 34 | e7.1 | e46 |
| 8 | 196 | 41 | 65 | 15 | 5.6 | 5.3 | 6.2 | 21 | 236 | 36 | e6.5 | e20 |
| 9 | 94 | 28 | 48 | 17 | 5.2 | 5.2 | 6.4 | 217 | 122 | 39 | e6.6 | e19 |
| 10 | 378 | 30 | 47 | 17 | 5.0 | 4.3 | 6.1 | 75 | 88 | 51 | e6.6 | e16 |
| 11 | 188 | 30 | 44 | 9.6 | 5.0 | 4.1 | 5.9 | 28 | 71 | 60 | e6.6 | e23 |
| 12 | 105 | 25 | 39 | 7.3 | 4.9 | 3.8 | 6.0 | 15 | 71 | 93 | e6.8 | e20 |
| 13 | 60 | 84 | 40 | 7.0 | 4.9 | 3.7 | 6.7 | 11 | 64 | 62 | e6.4 | e16 |
| 14 | 72 | 75 | 58 | 8.6 | 5.8 | 3.6 | 8.8 | 94 | 76 | 63 | e6.4 | e15 |
| 15 | 78 | 116 | 67 | 11 | 5.6 | 3.5 | 8.3 | 61 | 74 | 56 | e7.6 | e15 |
| 16 | 74 | 204 | 50 | 12 | 5.2 | 3.9 | 7.7 | 47 | 66 | 70 | e13 | e21 |
| 17 | 110 | 112 | 34 | 16 | 5.0 | 3.5 | 6.9 | e41 | 49 | 65 | e28 | e25 |
| 18 | 96 | 86 | 27 | 19 | 4.9 | 3.4 | 6.6 | e33 | 46 | 50 | e30 | e29 |
| 19 | 57 | 86 | 23 | 9.3 | 4.8 | 3.3 | 6.8 | e36 | 110 | 36 | e28 | e33 |
| 20 | 53 | 278 | 17 | 9.7 | 4.7 | 3.4 | 7.6 | 38 | 160 | 45 | e23 | e60 |
| 21 | 33 | 166 | 16 | 11 | 4.5 | 3.3 | 8.0 | 179 | 99 | 32 | e23 | e47 |
| 22 | 65 | 105 | 23 | 13 | 5.1 | 3.1 | 7.9 | 125 | 75 | 31 | e49 | e23 |
| 23 | 301 | e60 | 27 | 8.4 | 4.7 | 3.1 | 7.5 | 62 | 48 | 41 | e57 | e20 |
| 24 | 149 | e45 | 31 | 9.0 | 4.6 | 3.3 | 8.1 | 92 | 50 | 30 | e28 | e25 |
| 25 | 115 | e40 | 54 | 6.0 | 4.9 | 3.5 | 8.2 | 92 | 56 | 23 | e26 | e28 |
| 26 | 70 | e35 | 48 | 5.1 | 4.8 | 3.2 | 6.8 | 344 | 56 | 14 | e18 | e30 |
| 27 | 58 | e50 | 65 | 5.0 | 4.3 | 2.9 | 6.6 | 589 | 47 | 13 | e17 | e31 |
| 28 | 56 | e250 | 34 | 6.0 | 4.5 | 2.2 | 74 | 243 | 47 | 13 | e18 | e42 |
| 29 | 58 | e80 | 32 | 172 | --- | 2.5 | 404 | 85 | 74 | 13 | e16 | e47 |
| 30 | 206 | e350 | 36 | 81 | --- | 2.6 | 184 | 79 | 57 | 14 | e17 | e42 |
| 31 | 149 | --- | 36 | 53 | --- | 2.4 | --- | 77 | --- | 14 | e27 | --- |
| TOTAL | 3610.1 | 2948 | 1670 | 706.0 | 291.5 | 115.7 | 826.6 | 3236 | 2300 | 1266 | 535.4 | 922 |
| MEAN | 116 | 98.3 | 53.9 | 22.8 | 10.4 | 3.73 | 27.6 | 104 | 76.7 | 40.8 | 17.3 | 30.7 |
| MAX | 378 | 350 | 150 | 172 | 65 | 5.3 | 404 | 589 | 236 | 93 | 57 | 69 |
| MIN | 8.1 | 25 | 16 | 5.0 | 4.3 | 2.2 | 2.2 | 11 | 38 | 13 | 6.4 | 15 |
| AC-FT | 7160 | 5850 | 3310 | 1400 | 578 | 229 | 1640 | 6420 | 4560 | 2510 | 1060 | 1830 |
| CFSM | 2.34 | 1.97 | 1.08 | .46 | .21 | .07 | .55 | 2.10 | 1.54 | .82 | .35 | .62 |
| IN. | 2.70 | 2.20 | 1.25 | .53 | .22 | .09 | .62 | 2.42 | 1.72 | .95 | .40 | .69 |

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1984 - 1993, BY WATER YEAR (WY)

| | 1984 | 1985 | 1986 | 1987 | 1988 | 1989 | 1990 | 1991 | 1992 | 1993 |
|------|------|------|------|------|------|------|------|------|------|------|
| MEAN | 152 | 113 | 44.5 | 31.1 | 9.25 | 5.07 | 11.0 | 83.3 | 48.6 | 26.3 |
| MAX | 445 | 287 | 151 | 144 | 16.9 | 7.94 | 34.7 | 215 | 198 | 82.4 |
| (WY) | 1986 | 1988 | 1988 | 1992 | 1991 | 1988 | 1992 | 1985 | 1987 | 1987 |
| MIN | 8.65 | 10.5 | 9.99 | 5.88 | 4.82 | 3.16 | 3.19 | 2.68 | 2.72 | 2.94 |
| (WY) | 1987 | 1987 | 1989 | 1987 | 1990 | 1992 | 1991 | 1984 | 1984 | 1990 |

SUMMARY STATISTICS

FOR 1992 CALENDAR YEAR

FOR 1993 WATER YEAR

WATER YEARS 1984 - 1993

| | | | |
|--------------------------|----------|---------|-------|
| ANNUAL TOTAL | 25114.84 | 18427.3 | |
| ANNUAL MEAN | 68.6 | 50.5 | |
| HIGHEST ANNUAL MEAN | | | 50.5 |
| LOWEST ANNUAL MEAN | | | 80.9 |
| HIGHEST DAILY MEAN | 3170 | Jan 6 | 589 |
| LOWEST DAILY MEAN | .24 | Jan 3 | 2.2 |
| ANNUAL SEVEN-DAY MINIMUM | 2.3 | Mar 6 | 2.3 |
| INSTANTANEOUS PEAK FLOW | | | 9480 |
| INSTANTANEOUS PEAK STAGE | | | 16.78 |
| ANNUAL RUNOFF (AC-FT) | 49820 | | 36550 |
| ANNUAL RUNOFF (CFSM) | 1.38 | | 1.01 |
| ANNUAL RUNOFF (INCHES) | 18.76 | | 13.76 |
| 10 PERCENT EXCEEDS | 138 | | 110 |
| 50 PERCENT EXCEEDS | 29 | | 29 |
| 90 PERCENT EXCEEDS | 4.1 | | 4.7 |

e Estimated

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INTENTIONALLY

RIO INABON BASIN

50112500 RIO INABON AT REAL ABAJO, PR

LOCATION.--Lat 18°05'10", long 66°33'46", Hydrologic Unit 21010004, at bridge on private road, off Highway 511 at Hacienda La Concordia, 0.4 mi (0.6 km) upstream from diversion canal, 0.5 mi (0.8 km) north of Real Abajo, and 6.1 mi (9.8 km) northeast of Plaza Degetau in Ponce.

DRAINAGE AREA.--9.70 mi² (25.12 km²).

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--1962-63 (annual low-flow measurements only), February to June 1964 (monthly measurements only), July 1964 to July 1970, April 1971 to current year.

GAGE.--Water-stage recorder. Elevation of gage is 410 ft (125 m), from topographic map. Prior to April 1971 nonrecording gage and crest-stage gage at different datum.

REMARKS.--Records fair except those for estimated daily discharges, which are poor. Gage-height and precipitation satellite telemetry at station.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993
DAILY MEAN VALUES

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|-------|------|------|-------|-------|-------|-------|-------|--------|-------|-------|-------|-------|
| 1 | 30 | 46 | 15 | 9.9 | 14 | 5.6 | 3.4 | 106 | 40 | 13 | 6.8 | 9.7 |
| 2 | 20 | 37 | 14 | 9.9 | 9.5 | 5.7 | 2.5 | 94 | 35 | 12 | 7.1 | 8.4 |
| 3 | 16 | 33 | 11 | 9.6 | 9.0 | 5.0 | 7.2 | 79 | 28 | 16 | 6.7 | 8.5 |
| 4 | 35 | 30 | 11 | 9.2 | 7.6 | 4.4 | 5.6 | 48 | 24 | 13 | 6.8 | 46 |
| 5 | 43 | 28 | 10 | 8.5 | 6.8 | 4.4 | 3.1 | 35 | 24 | 12 | 6.9 | 22 |
| 6 | 86 | 27 | 9.2 | 8.4 | 6.5 | 5.1 | 2.7 | 28 | 20 | 12 | 7.2 | 10 |
| 7 | 68 | 25 | 8.1 | 8.1 | 6.5 | 5.6 | 3.4 | 21 | 22 | 14 | 7.2 | 7.7 |
| 8 | 53 | 23 | 7.8 | 7.7 | 6.7 | 6.4 | 3.2 | 18 | 19 | 14 | 8.7 | 6.3 |
| 9 | 69 | 23 | 7.1 | 7.6 | 7.0 | 7.1 | 6.3 | 35 | 22 | 14 | 9.8 | 6.3 |
| 10 | 81 | 22 | 6.8 | 7.6 | 7.2 | 5.6 | 4.4 | 14 | 14 | 14 | 11 | 13 |
| 11 | 55 | 21 | 6.8 | 7.7 | 7.3 | 5.2 | 9.8 | 8.8 | 11 | 27 | 10 | 5.9 |
| 12 | 41 | 25 | 6.8 | 8.3 | 8.4 | 6.2 | 13 | 8.5 | 9.6 | 24 | 11 | 4.2 |
| 13 | 35 | 26 | 7.2 | 7.9 | 8.5 | 6.4 | 24 | 8.2 | 11 | 16 | 9.3 | 4.7 |
| 14 | 48 | 27 | 8.6 | 6.6 | 8.4 | 6.8 | 10 | 14 | 17 | 18 | 9.6 | 4.7 |
| 15 | 42 | 30 | 7.8 | 7.0 | 8.5 | 8.8 | 6.1 | 8.9 | 17 | 14 | 11 | 4.6 |
| 16 | 52 | 62 | 5.7 | 7.6 | 9.9 | 5.0 | 9.0 | 18 | 17 | 12 | 28 | 6.0 |
| 17 | 51 | 52 | 5.3 | 9.1 | 8.7 | 4.5 | 4.7 | 11 | 14 | 11 | 13 | 11 |
| 18 | 43 | 43 | 4.8 | 8.9 | 7.1 | 4.1 | 5.5 | 12 | 12 | 10 | 12 | 10 |
| 19 | 35 | 35 | 7.1 | 8.8 | 7.1 | 3.4 | 8.8 | 12 | 26 | 9.9 | 11 | 8.1 |
| 20 | 32 | 91 | 7.8 | 9.5 | 6.0 | 3.8 | 6.1 | 12 | 24 | 9.9 | 12 | 11 |
| 21 | 29 | 65 | 7.1 | 9.3 | 5.7 | 3.9 | 7.0 | 49 | 15 | 9.2 | 13 | 10 |
| 22 | 28 | 50 | 9.2 | 8.6 | 4.9 | 3.5 | 8.3 | 31 | 13 | 11 | 15 | 10 |
| 23 | 78 | 41 | 11 | 7.8 | 5.0 | 2.9 | 6.4 | 39 | 13 | 12 | 17 | 15 |
| 24 | 98 | 35 | 12 | 6.6 | 5.4 | 3.7 | 12 | 47 | 13 | 9.5 | 12 | 14 |
| 25 | 84 | 31 | 12 | 6.1 | 5.0 | 5.1 | 9.8 | 49 | 12 | 8.5 | 10 | 8.3 |
| 26 | 57 | 26 | 13 | 6.3 | 5.2 | 4.8 | 6.8 | 82 | 12 | 9.2 | 16 | 8.9 |
| 27 | 47 | 19 | 14 | 7.7 | 5.5 | 4.0 | 7.4 | 222 | 12 | 8.7 | 16 | 7.5 |
| 28 | 42 | 30 | 12 | e25 | 5.4 | 3.2 | 25 | 143 | 23 | 7.0 | 17 | 29 |
| 29 | 71 | 25 | 14 | e40 | --- | 3.6 | 81 | 84 | 18 | 6.0 | 12 | 19 |
| 30 | 51 | 18 | 13 | 12 | --- | 6.4 | 75 | 66 | 17 | 5.5 | 10 | 27 |
| 31 | 43 | --- | 11 | 8.9 | --- | 6.3 | --- | 48 | --- | 5.9 | 12 | --- |
| TOTAL | 1563 | 1046 | 296.2 | 306.2 | 202.8 | 156.5 | 377.5 | 1451.4 | 554.6 | 378.3 | 355.1 | 356.8 |
| MEAN | 50.4 | 34.9 | 9.55 | 9.88 | 7.24 | 5.05 | 12.6 | 46.8 | 18.5 | 12.2 | 11.5 | 11.9 |
| MAX | 98 | 91 | 15 | 40 | 14 | 8.8 | 81 | 222 | 40 | 27 | 28 | 46 |
| MIN | 16 | 18 | 4.8 | 6.1 | 4.9 | 2.9 | 2.5 | 8.2 | 9.6 | 5.5 | 6.7 | 4.2 |
| AC-FT | 3100 | 2070 | 588 | 607 | 402 | 310 | 749 | 2880 | 1100 | 750 | 704 | 708 |
| CFSM | 5.20 | 3.59 | .99 | 1.02 | .75 | .52 | 1.30 | 4.83 | 1.91 | 1.26 | 1.18 | 1.23 |
| IN. | 5.99 | 4.01 | 1.14 | 1.17 | .78 | .60 | 1.45 | 5.57 | 2.13 | 1.45 | 1.36 | 1.37 |

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1964 - 1993, BY WATER YEAR (WY)

| | MEAN | 48.6 | 35.4 | 12.8 | 8.75 | 5.35 | 5.70 | 8.17 | 20.5 | 16.6 | 12.4 | 17.4 | 33.0 |
|------|------|------|------|------|------|------|------|------|------|------|------|------|------|
| MAX | 148 | 77.9 | 26.5 | 45.5 | 9.25 | 16.4 | 19.2 | 76.7 | 49.8 | 32.7 | 46.1 | 119 | |
| (WY) | 1986 | 1978 | 1966 | 1992 | 1992 | 1972 | 1992 | 1969 | 1969 | 1979 | 1979 | 1975 | |
| MIN | 15.4 | 8.32 | 4.43 | 4.11 | 3.05 | 1.85 | 2.76 | 1.94 | 2.75 | 1.77 | 4.47 | 7.70 | |
| (WY) | 1983 | 1977 | 1977 | 1989 | 1977 | 1977 | 1975 | 1967 | 1967 | 1990 | 1974 | 1986 | |

SUMMARY STATISTICS FOR 1992 CALENDAR YEAR FOR 1993 WATER YEAR WATER YEARS 1964 - 1993

| | ANNUAL TOTAL | 7811.1 | 7044.4 | |
|--------------------------|--------------|--------|--------|--------|
| ANNUAL MEAN | 21.3 | 19.3 | 18.6 | |
| HIGHEST ANNUAL MEAN | | | 30.9 | 1969 |
| LOWEST ANNUAL MEAN | | | 9.57 | 1974 |
| HIGHEST DAILY MEAN | 686 | Jan 6 | 222 | May 27 |
| LOWEST DAILY MEAN | 4.0 | May 22 | 2.5 | Apr 2 |
| ANNUAL SEVEN-DAY MINIMUM | 4.4 | Mar 12 | 3.6 | Mar 18 |
| INSTANTANEOUS PEAK FLOW | | | 1880 | May 27 |
| INSTANTANEOUS PEAK STAGE | | | 15.00 | May 27 |
| ANNUAL RUNOFF (AC-FT) | 15490 | 13970 | 13480 | |
| ANNUAL RUNOFF (CFSM) | 2.20 | 1.99 | 1.92 | |
| ANNUAL RUNOFF (INCHES) | 29.96 | 27.02 | 26.06 | |
| 10 PERCENT EXCEEDS | 43 | 46 | 41 | |
| 50 PERCENT EXCEEDS | 11 | 11 | 9.2 | |
| 90 PERCENT EXCEEDS | 5.3 | 5.3 | 3.2 | |

e Estimated

RIO BUCANA BASIN

369

50113800 RIO CERRILLOS ABOVE LAGO CERRILLOS NEAR PONCE, PR

LOCATION.--Lat 18°07'01", long 66°36'17", Hydrologic Unit 21010004, on right bank, 0.3 mi (0.5 km) downstream from confluence with Rio San Patricio, 0.1 mi (0.2 km) southwest of Hwy 139 and 2.4 mi (3.7 km) northwest of Maragüez.

DRAINAGE AREA.-- 15.4 mi² (39.9 km²).

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--December 1988 to current year.

GAGE.--Water-stage recorder and crest-stage gage. Elevation of gage is 720 ft (210 m), from topographic map.

REMARKS.--Records fair except those for estimated daily discharges, which are poor. Gage-height and precipitation satellite telemetry at station.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993
DAILY MEAN VALUES

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|-------|-------|------|------|------|------|-------|-------|------|------|------|------|------|
| 1 | 36 | 108 | 39 | 19 | 20 | 11 | 7.4 | 65 | 65 | 19 | 14 | 15 |
| 2 | 30 | 78 | 37 | 19 | 17 | 11 | 7.3 | 118 | 56 | 18 | 14 | 13 |
| 3 | 27 | 66 | 34 | 19 | 16 | 11 | 8.7 | 87 | 45 | 34 | 13 | 29 |
| 4 | 52 | 60 | 32 | 18 | 15 | 10 | 7.6 | 40 | 42 | 21 | 13 | 21 |
| 5 | 73 | 52 | 31 | 17 | 14 | 10 | 7.3 | 23 | 35 | 19 | 13 | 17 |
| 6 | 174 | 48 | 29 | 17 | 13 | 9.7 | 7.1 | 24 | 34 | 19 | 13 | 16 |
| 7 | 136 | 43 | 29 | 17 | 13 | 9.6 | 7.4 | 19 | 34 | 22 | 13 | 16 |
| 8 | 136 | 39 | 28 | 17 | 13 | 9.6 | 8.5 | 17 | 32 | 19 | 13 | 17 |
| 9 | 178 | 36 | 27 | 16 | 13 | 11 | 9.6 | 81 | 54 | 17 | 14 | 18 |
| 10 | 169 | 34 | 27 | 15 | 13 | 9.6 | 8.6 | 41 | 33 | 17 | 14 | 76 |
| 11 | 130 | 32 | 26 | 15 | 12 | 8.6 | 30 | 22 | 29 | 50 | 13 | 38 |
| 12 | 91 | 58 | 26 | 15 | 12 | 8.6 | 19 | 18 | 27 | 29 | 13 | 22 |
| 13 | 73 | 59 | 27 | 14 | 12 | 8.6 | 43 | 16 | 26 | 27 | 12 | 21 |
| 14 | 84 | 46 | 28 | 15 | 12 | 8.6 | 24 | 24 | 27 | 25 | 12 | 19 |
| 15 | 91 | 41 | 27 | 14 | 12 | 9.2 | 34 | 17 | 25 | 20 | 13 | 18 |
| 16 | 96 | 91 | 23 | 14 | 16 | 9.1 | 21 | 33 | 26 | 19 | 49 | 19 |
| 17 | 119 | 88 | 23 | 14 | 14 | 8.2 | 13 | 21 | 23 | 18 | 17 | 18 |
| 18 | 98 | 68 | 23 | 14 | 12 | 7.8 | 15 | 17 | 22 | 17 | 14 | 32 |
| 19 | 78 | 48 | 23 | 13 | 13 | 7.8 | 15 | 16 | 46 | 17 | 14 | 23 |
| 20 | 66 | 140 | 22 | 12 | 12 | 7.5 | 13 | 18 | 46 | 17 | 13 | 37 |
| 21 | 55 | 95 | 21 | 12 | 12 | 8.9 | 12 | 148 | 28 | 16 | 14 | 24 |
| 22 | 54 | 68 | 21 | 12 | 11 | 7.3 | 12 | 78 | 26 | 19 | 17 | 20 |
| 23 | 234 | 51 | 21 | 12 | 11 | 7.3 | 12 | 65 | 23 | 18 | 16 | 30 |
| 24 | 253 | 43 | 21 | 11 | 11 | 7.9 | 16 | 80 | 22 | 17 | 14 | 25 |
| 25 | 201 | 38 | 20 | 11 | 11 | 9.0 | 14 | 77 | 22 | 16 | 14 | 19 |
| 26 | 159 | 35 | 25 | 11 | 11 | 9.4 | 12 | e150 | 21 | 18 | 14 | 41 |
| 27 | 134 | 34 | 22 | 11 | 11 | 8.8 | 11 | e270 | 21 | 17 | 30 | 30 |
| 28 | 115 | 54 | 21 | 47 | 11 | 8.6 | 20 | e208 | 34 | 15 | 16 | 47 |
| 29 | 161 | 76 | 33 | 128 | --- | 7.8 | 142 | 135 | 26 | 15 | 14 | 36 |
| 30 | 108 | 51 | 25 | 29 | --- | 8.6 | 96 | 102 | 22 | 14 | 16 | 69 |
| 31 | 91 | --- | 21 | 21 | --- | 8.4 | --- | 84 | --- | 14 | 19 | --- |
| TOTAL | 3502 | 1780 | 812 | 619 | 363 | 278.5 | 653.5 | 2114 | 972 | 623 | 488 | 826 |
| MEAN | 113 | 59.3 | 26.2 | 20.0 | 13.0 | 8.98 | 21.8 | 68.2 | 32.4 | 20.1 | 15.7 | 27.5 |
| MAX | 253 | 140 | 39 | 128 | 20 | 11 | 142 | 270 | 65 | 50 | 49 | 76 |
| MIN | 27 | 32 | 20 | 11 | 11 | 7.3 | 7.1 | 16 | 21 | 14 | 12 | 13 |
| AC-FT | 6950 | 3530 | 1610 | 1230 | 720 | 552 | 1300 | 4190 | 1930 | 1240 | 968 | 1640 |
| CFSM | 9.49 | 4.99 | 2.20 | 1.68 | 1.09 | .75 | 1.83 | 5.73 | 2.72 | 1.69 | 1.32 | 2.31 |
| IN. | 10.95 | 5.56 | 2.54 | 1.94 | 1.13 | .87 | 2.04 | 6.61 | 3.04 | 1.95 | 1.53 | 2.58 |

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1989 - 1993, BY WATER YEAR (WY)

| | 1989 | 1990 | 1991 | 1992 | 1993 |
|------|------|------|------|------|------|
| MEAN | 95.7 | 40.9 | 18.3 | 21.6 | 9.65 |
| MAX | 154 | 59.3 | 26.2 | 59.0 | 13.2 |
| (WY) | 1991 | 1993 | 1993 | 1992 | 1989 |
| MIN | 24.6 | 16.0 | 13.3 | 7.46 | 6.34 |
| (WY) | 1992 | 1992 | 1989 | 1989 | 1990 |

SUMMARY STATISTICS

FOR 1992 CALENDAR YEAR

FOR 1993 WATER YEAR

WATER YEARS 1989 - 1993

| | | | |
|--------------------------|---------|---------|-------|
| ANNUAL TOTAL | 14620.3 | 13031.0 | |
| ANNUAL MEAN | 39.9 | 35.7 | 30.1 |
| HIGHEST ANNUAL MEAN | | | 35.7 |
| LOWEST ANNUAL MEAN | | | 22.9 |
| HIGHEST DAILY MEAN | 717 | 270 | 717 |
| LOWEST DAILY MEAN | 7.1 | 7.1 | 3.3 |
| ANNUAL SEVEN-DAY MINIMUM | 8.7 | 7.5 | 3.5 |
| INSTANTANEOUS PEAK FLOW | | 1480 | 8140 |
| INSTANTANEOUS PEAK STAGE | | 4.95 | 9.65 |
| INSTANTANEOUS LOW FLOW | | 6.9 | 3.3 |
| ANNUAL RUNOFF (AC-FT) | 29000 | 25850 | 21770 |
| ANNUAL RUNOFF (CFSM) | 3.36 | 3.00 | 2.53 |
| ANNUAL RUNOFF (INCHES) | 45.70 | 40.74 | 34.31 |
| 10 PERCENT EXCEEDS | 85 | 85 | 68 |
| 50 PERCENT EXCEEDS | 22 | 20 | 15 |
| 90 PERCENT EXCEEDS | 10 | 10 | 5.4 |

e Estimated

RIO BUCANA BASIN

50113950 LAGO CERRILLOS AT DAMSITE, PR

LOCATION.--Lat 18°04'41", long 66°34'38", Hydrologic Unit 21010004, on left bank west from intake house of dam, 0.7 mi (1.1 km) southwest from Iglesia San Mateo at Real Abajo, 3.2 mi (5.1 km) northeast from Hospital de Distrito de Ponce, and 2.2 mi (3.5 km) northwest from Escuela Yuca.

DRAINAGE AREA.--17.4 mi² (45.1 km²).

ELEVATION RECORDS

PERIOD OF RECORD.--October 1992 to September 1993.

GAGE.--Water-stage recorder. Datum of gage is mean sea level.

REMARKS.--Lake is formed by Cerrilloas Dam, a rockfilled ungated structure completed in 1992. Elevation of crest is 611 ft (186 m) above mean sea level, with a structural height of 323 ft (98 m) and a length of 1,555 ft (474 m). The dam has a capacity of approximately 47,900 ac-ft (59.1 hm³). The dam is operated by U.S. Army Corps of Engineers and its purpose is for flood control, water supply, power generation, and recreation. Gage-height and precipitation satellite telemetry at station.

EXTREMES OBSERVED FOR CURRENT YEAR.--Maximum elevation, 523.56 ft (159.58 m), Sept. 30; minimum elevation, 417.23 ft (127.17 m), Oct. 1.

Capacity Table
(based on data from U.S. Army Corps of Engineers)

| Elevation, in feet | Contents in acre-feet | Elevation, in feet | Contents in acre-feet |
|--------------------|-----------------------|--------------------|-----------------------|
| 328 | 0 | 492 | 10,621 |
| 426 | 3,206 | 525 | 16,990 |

ELEVATION (FEET NGVD), WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993
DAILY OBSERVATION AT 24:00 VALUES

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|
| 1 | 419.40 | 478.71 | 495.43 | 498.94 | 504.51 | 506.63 | 507.86 | 516.61 | 519.87 | 520.37 | 519.43 | 517.74 |
| 2 | 421.35 | 479.28 | 495.52 | 499.06 | 504.69 | 506.67 | 507.87 | 518.88 | 519.85 | 520.47 | 519.42 | 517.85 |
| 3 | 422.32 | 479.77 | 495.43 | 499.23 | 504.83 | 506.71 | 507.99 | 519.78 | 520.23 | 519.67 | 519.50 | 518.09 |
| 4 | 423.77 | 479.63 | 495.53 | 499.36 | 504.82 | 506.73 | 508.02 | 520.14 | 520.50 | 519.65 | 519.53 | 518.30 |
| 5 | 425.09 | 479.61 | 495.83 | 499.48 | 504.93 | 506.77 | 508.04 | 520.37 | 519.51 | 519.78 | 519.55 | 518.40 |
| 6 | 428.12 | 483.26 | 496.15 | 499.59 | 505.00 | 506.81 | 508.05 | 520.45 | 519.74 | 519.89 | 519.59 | 518.49 |
| 7 | 432.94 | 483.76 | 496.30 | 499.72 | 505.10 | 506.84 | 508.06 | 520.19 | 519.92 | 520.07 | 519.68 | 518.55 |
| 8 | 436.75 | 484.19 | 495.99 | 499.80 | 505.17 | 507.00 | 508.11 | 519.59 | 519.91 | 520.23 | 519.70 | 518.58 |
| 9 | 439.58 | 484.63 | 495.43 | 499.93 | 505.24 | 507.06 | 508.20 | 520.70 | 519.53 | 520.32 | 519.72 | 518.69 |
| 10 | 442.05 | 485.02 | 495.22 | 500.02 | 505.31 | 507.10 | 508.23 | 519.72 | 519.74 | 519.37 | 519.84 | 519.62 |
| 11 | 444.79 | 485.41 | 495.46 | 500.12 | 505.36 | 507.14 | 508.45 | 519.73 | 519.93 | 519.58 | 519.86 | 519.93 |
| 12 | 446.69 | 486.22 | 495.70 | 500.22 | 505.45 | 507.16 | 508.65 | 519.90 | 520.12 | 519.87 | 519.91 | 520.04 |
| 13 | 448.28 | 486.95 | 495.91 | 500.32 | 505.53 | 507.20 | 509.31 | 520.06 | 520.31 | 520.07 | 519.96 | 520.17 |
| 14 | 450.18 | 487.49 | 496.16 | 500.39 | 505.60 | 507.24 | 509.59 | 519.55 | 520.06 | 520.29 | 520.00 | 520.21 |
| 15 | 451.73 | 488.08 | 496.41 | 500.50 | 505.65 | 507.37 | 509.85 | 519.67 | 519.79 | 520.09 | 517.38 | 520.32 |
| 16 | 452.49 | 489.60 | 496.54 | 500.58 | 505.83 | 507.39 | 510.05 | 519.95 | 520.00 | 519.97 | 518.16 | 520.35 |
| 17 | 454.12 | 491.13 | 496.60 | 500.69 | 505.92 | 507.42 | 510.14 | 520.18 | 520.12 | 520.07 | 518.30 | 520.46 |
| 18 | 454.61 | 491.96 | 496.73 | 500.75 | 505.97 | 507.43 | 510.25 | 519.89 | 520.17 | A | 518.35 | 520.71 |
| 19 | 455.33 | 492.45 | 496.85 | 500.83 | 506.13 | 507.45 | 510.33 | 519.55 | 519.83 | A | 518.46 | 520.82 |
| 20 | 456.44 | 494.71 | 496.80 | 500.93 | 506.19 | 507.45 | 510.47 | 519.76 | 519.79 | A | 518.52 | 521.14 |
| 21 | 457.35 | 494.59 | 496.93 | 501.00 | 506.25 | 507.47 | 510.53 | 521.42 | 520.03 | 520.10 | 518.65 | 521.31 |
| 22 | 458.23 | 494.72 | 497.06 | 501.07 | 506.30 | 507.49 | 510.60 | 519.88 | 520.25 | 519.58 | 518.90 | 521.43 |
| 23 | 466.62 | 494.62 | 497.22 | 501.16 | 506.36 | 507.49 | 510.65 | 519.93 | 520.38 | 519.66 | 517.75 | 521.64 |
| 24 | 467.13 | 494.92 | 497.37 | 501.23 | 506.40 | 507.58 | 510.81 | 520.35 | 520.37 | 519.83 | 517.05 | 521.84 |
| 25 | 467.19 | 494.80 | 497.47 | 501.30 | 506.43 | 507.64 | 510.89 | 520.04 | 520.39 | 519.90 | 517.04 | 521.95 |
| 26 | 469.57 | 494.99 | 497.69 | 501.36 | 506.46 | 507.67 | 510.93 | 520.72 | 520.48 | 520.04 | 517.07 | 522.24 |
| 27 | 471.10 | 495.32 | 497.87 | 501.47 | 506.52 | 507.70 | 511.00 | 521.51 | 519.57 | 520.13 | 517.29 | 522.43 |
| 28 | 472.25 | 495.10 | 498.02 | 502.16 | 506.60 | 507.74 | 511.28 | 520.64 | 519.88 | 520.24 | 517.46 | 522.99 |
| 29 | 474.95 | 495.11 | 498.42 | 503.78 | --- | 507.78 | 513.73 | 519.88 | 520.07 | 520.29 | 517.53 | 523.03 |
| 30 | 476.49 | 495.30 | 498.61 | 504.15 | --- | 507.79 | 515.41 | 519.95 | 520.27 | 520.35 | 517.52 | 523.41 |
| 31 | 477.67 | --- | 498.81 | 504.33 | --- | 507.85 | --- | 520.00 | --- | 520.40 | 517.64 | --- |
| MEAN | 450.47 | 488.71 | 496.63 | 500.76 | 505.66 | 507.28 | 509.78 | 519.97 | 520.02 | --- | 518.67 | 520.36 |
| MAX | 477.67 | 495.32 | 498.81 | 504.33 | 506.60 | 507.85 | 515.41 | 521.51 | 520.50 | --- | 520.00 | 523.41 |
| MIN | 419.40 | 478.71 | 495.22 | 498.94 | 504.51 | 506.63 | 507.86 | 516.61 | 519.51 | --- | 517.04 | 517.74 |

A No gage-height record

RIO BUCANA BASIN

50114000 RIO CERRILLOS NEAR PONCE, PR

LOCATION.--Lat 18°04'15", long 66°34'51", Hydrologic Unit 21010004, on right bank off Highway 139, 0.8 mi (1.3 km) below Lago Cerrillos Dam, 2.3 mi (3.7 km) upstream from Quebrada Ausubo and 4.6 mi (7.4 km) northeast of Plaza Degetau in Ponce.

DRAINAGE AREA.--17.8 mi² (46.1 km²), excludes 17.4 mi² (45.1 km²), upstream from Lago Cerrillos Dam.

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--February to April 1964 (monthly measurements only), May 1964 to June 1985, July 1985 to April 1991 (semi-monthly measurements only), May 1991 to current year.

GAGE.--Water-stage recorder. Datum of gage is 253.10 ft (77.145 m), above mean sea level. Prior to March 22, 1977 at site 0.15 mi (0.24 km) upstream and datum 9.90 ft (3.018 m) higher.

REMARKS.--Records poor. Flow regulated by Lago Cerrillos Dam since May 1991. Gage-height and precipitation satellite telemetry at station. Prior to June 1985 some low-flow regulation by construction upstream. Maximum discharge prior to regulation, 22,400 ft³/s (6.34 m³/s), Sept. 16, 1975, gage-height, 11.2 ft (3.414 m), site and datum then in use from floodmarks, from rating curve extended above 150 ft³/s (4.25 m³/s), on basis of slope-area measurements of peak flow; minimum discharge prior to regulation, 2.2 ft³/s (0.062 m³/s), May 28, 1967.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993
DAILY MEAN VALUES

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|-------|--------|------|-------|-------|-------|-------|-------|--------|-------|-------|-------|-------|
| 1 | 3.5 | 12 | 17 | 4.9 | 4.3 | 4.2 | 7.6 | 9.8 | 45 | 5.2 | 109 | 6.0 |
| 2 | 3.1 | 13 | 11 | 4.9 | 4.2 | 4.2 | 7.4 | 12 | 34 | 5.3 | 4.4 | 5.5 |
| 3 | 2.3 | 13 | 15 | 4.7 | 4.2 | 4.2 | 7.4 | 12 | 4.2 | 144 | 3.9 | 5.5 |
| 4 | 2.0 | 13 | 8.8 | 4.7 | 4.2 | 4.2 | 7.2 | 20 | 6.0 | 17 | 3.8 | 5.5 |
| 5 | 2.0 | 13 | 6.4 | 4.7 | 4.2 | 4.2 | 6.9 | 11 | 129 | 5.1 | 3.8 | 5.6 |
| 6 | 5.2 | 14 | 6.2 | 4.6 | 4.2 | 5.2 | 6.9 | 35 | 7.0 | 5.2 | 3.6 | 5.8 |
| 7 | 2.4 | 13 | 17 | 4.5 | 4.2 | 4.2 | 6.7 | 88 | 6.8 | 5.4 | 3.6 | 5.7 |
| 8 | 46 | 13 | 73 | 4.8 | 5.5 | 4.3 | 6.6 | 126 | e40 | 5.3 | 3.5 | 5.8 |
| 9 | 169 | 14 | 135 | 4.5 | 4.3 | 4.4 | 6.5 | 51 | 114 | 5.4 | 3.5 | 6.0 |
| 10 | 144 | 14 | 49 | 4.5 | 4.2 | 4.5 | 6.6 | 176 | 14 | 120 | 3.4 | 6.1 |
| 11 | 3.7 | 14 | 5.5 | 4.5 | 4.2 | 4.5 | 6.5 | 38 | 8.8 | 45 | 3.5 | 6.2 |
| 12 | 3.3 | 12 | 5.4 | 4.6 | 4.1 | 4.5 | 6.2 | 7.5 | 9.0 | 5.6 | 3.4 | 6.5 |
| 13 | 3.1 | 14 | 5.4 | 4.7 | 4.2 | 4.9 | 6.5 | 7.5 | 9.5 | 5.2 | 3.3 | 6.6 |
| 14 | 3.1 | 14 | 13 | 4.7 | 4.2 | 6.0 | 6.4 | 113 | 69 | 4.9 | 3.2 | 6.7 |
| 15 | 27 | 16 | 5.3 | 4.7 | 4.2 | 7.4 | 6.1 | 12 | 63 | 40 | 206 | 6.9 |
| 16 | 80 | 17 | 11 | 4.7 | 4.5 | 7.9 | 6.0 | 7.5 | 8.7 | 37 | 9.1 | 6.9 |
| 17 | 80 | 27 | 18 | 4.7 | 4.2 | 7.8 | 6.2 | 8.9 | 7.3 | 4.7 | 8.9 | 6.9 |
| 18 | 83 | 17 | 12 | 4.5 | 4.4 | 7.6 | 6.2 | 57 | 17 | 4.7 | 8.8 | 7.2 |
| 19 | 44 | 29 | 11 | 4.4 | 5.4 | 7.6 | 6.5 | 63 | 127 | 4.4 | 8.8 | 7.5 |
| 20 | 3.2 | 26 | 27 | 4.4 | 4.9 | 7.6 | 6.6 | 7.6 | 59 | 4.2 | 9.0 | 12 |
| 21 | 3.2 | 25 | 8.9 | 4.3 | 4.9 | 7.6 | 6.7 | 89 | 5.9 | 69 | 9.2 | 16 |
| 22 | 3.2 | 74 | 9.9 | 4.2 | 4.5 | 7.6 | 6.7 | 261 | 5.8 | 69 | 10 | 16 |
| 23 | 6.8 | 108 | 5.4 | 4.2 | 4.2 | 7.6 | 6.7 | 74 | 5.7 | 9.3 | 127 | 14 |
| 24 | 167 | 111 | 5.7 | 4.2 | 4.2 | 7.6 | 7.2 | 61 | 22 | 5.3 | 93 | 9.5 |
| 25 | 259 | 63 | 9.5 | 4.2 | 4.2 | 7.7 | 7.1 | 111 | 27 | 4.6 | 25 | 9.7 |
| 26 | 103 | 48 | 5.1 | 4.2 | 4.2 | 7.9 | 7.1 | 90 | 5.9 | 4.5 | 20 | 9.3 |
| 27 | 12 | 41 | 4.9 | 4.2 | 4.2 | 7.9 | 7.1 | 314 | 125 | 4.4 | 11 | 9.8 |
| 28 | 13 | 54 | 4.9 | 4.4 | 4.2 | 7.9 | 7.1 | 287 | 5.9 | 4.2 | 8.1 | 11 |
| 29 | 12 | 56 | 5.2 | 4.8 | --- | 8.1 | 8.2 | 152 | 5.2 | 4.1 | 7.6 | 54 |
| 30 | 14 | 72 | 5.1 | 4.4 | --- | 8.0 | 10 | 58 | 5.1 | 4.1 | 27 | 72 |
| 31 | 13 | --- | 5.0 | 4.4 | --- | 7.9 | --- | 48 | --- | 4.0 | 17 | --- |
| TOTAL | 1316.1 | 970 | 521.6 | 140.2 | 122.4 | 195.2 | 206.9 | 2407.8 | 991.8 | 656.1 | 761.4 | 352.2 |
| MEAN | 42.5 | 32.3 | 16.8 | 4.52 | 4.37 | 6.30 | 6.90 | 77.7 | 33.1 | 21.2 | 24.6 | 11.7 |
| MAX | 259 | 111 | 135 | 4.9 | 5.5 | 8.1 | 10 | 314 | 129 | 144 | 206 | 72 |
| MIN | 2.0 | 12 | 4.9 | 4.2 | 4.1 | 4.2 | 6.0 | 7.5 | 4.2 | 4.0 | 3.2 | 5.5 |
| AC-FT | 2610 | 1920 | 1030 | 278 | 243 | 387 | 410 | 4780 | 1970 | 1300 | 1510 | 699 |
| CFSM | 2.39 | 1.82 | .95 | .25 | .25 | .35 | .39 | 4.36 | 1.86 | 1.19 | 1.38 | .66 |
| IN. | 2.75 | 2.03 | 1.09 | .29 | .26 | .41 | .43 | 5.03 | 2.07 | 1.37 | 1.59 | .74 |

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1964 - 1993, BY WATER YEAR (WY)

| | MEAN | 78.3 | 60.8 | 24.0 | 15.8 | 10.2 | 10.3 | 17.0 | 42.4 | 29.8 | 26.5 | 35.9 | 64.7 |
|------|------|------|------|------|------|------|------|------|------|------|------|------|------|
| MAX | 202 | 124 | 49.1 | 74.2 | 20.0 | 20.3 | 106 | 221 | 88.9 | 71.1 | 82.4 | 256 | |
| (WY) | 1971 | 1978 | 1966 | 1992 | 1969 | 1969 | 1985 | 1985 | 1969 | 1968 | 1968 | 1975 | |
| MIN | 27.7 | 15.3 | 7.60 | 4.52 | 4.37 | 5.13 | 4.93 | 4.14 | 4.10 | 6.26 | 13.2 | 11.7 | |
| (WY) | 1966 | 1992 | 1977 | 1993 | 1993 | 1977 | 1979 | 1967 | 1974 | 1976 | 1984 | 1993 | |

SUMMARY STATISTICS

FOR 1992 CALENDAR YEAR

FOR 1993 WATER YEAR

WATER YEARS 1964 - 1993

| | | | |
|--------------------------|----------|--------|-------|
| ANNUAL TOTAL | 11495.84 | 8641.7 | |
| ANNUAL MEAN | 31.4 | 23.7 | 34.3 |
| HIGHEST ANNUAL MEAN | | | 53.9 |
| LOWEST ANNUAL MEAN | | | 17.2 |
| HIGHEST DAILY MEAN | 900 | Jan 6 | 11500 |
| LOWEST DAILY MEAN | .64 | Aug 19 | .64 |
| ANNUAL SEVEN-DAY MINIMUM | 1.7 | Aug 24 | 1.7 |
| INSTANTANEOUS PEAK FLOW | | | 1100 |
| INSTANTANEOUS PEAK STAGE | | | 6.07 |
| ANNUAL RUNOFF (AC-FT) | 22800 | 5.74 | 24830 |
| ANNUAL RUNOFF (CFSM) | 1.76 | 1.33 | 1.93 |
| ANNUAL RUNOFF (INCHES) | 24.03 | 18.06 | 26.17 |
| 10 PERCENT EXCEEDS | 73 | 72 | 79 |
| 50 PERCENT EXCEEDS | 14 | 6.9 | 17 |
| 90 PERCENT EXCEEDS | 3.1 | 4.2 | 5.8 |

e Estimated

RIO BUCANA BASIN

50114000 RIO CERRILLOS NEAR PONCE, PR

Location.--Lat 18°04'15", long 66°34'51", Hydrologic unit 21010004, on right bank off Highway 139, 2.3 mi (3.7 km) upstream from Quebrada Ausubo and 4.6 mi (7.4 km) northeast of Plaza Degetau in Ponce.

DRAINAGE AREA.--17.8 mi² (46.1 km²)

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Water years 1964 to current year.

WATER-QUALITY DATA, WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993

| DATE | TIME | DIS-CHARGE, INST. CUBIC FEET PER SECOND | SPE-CIFIC CON-DUCT-ANCE (US/CM) | PH WATER WHOLE FIELD (STAND-ARD UNITS) | TEMPER-ATURE WATER (DEG C) | TUR-BID-ITY (NTU) | OXYGEN, DIS-SOLVED (MG/L) | OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION) | OXYGEN DEMAND, CHEM-ICAL (HIGH LEVEL) (MG/L) | COLI-FORM, FECAL, 0.45 UM-MF (COLS./100 ML) | STREP-TOCOCCI, FECAL, (COLS. PER 100 ML) |
|----------|------|---|---------------------------------|--|----------------------------|-------------------|---------------------------|---|--|---|--|
| OCT 1992 | | | | | | | | | | | |
| 27... | 1215 | 12 | 400 | 7.7 | 29.0 | 38 | 6.1 | 79 | 12 | K20 | K70 |
| DEC | | | | | | | | | | | |
| 08... | 1210 | 4.5 | 306 | 7.8 | 23.9 | 1.2 | 7.9 | 105 | <10 | 42000 | 7700 |
| MAR 1993 | | | | | | | | | | | |
| 01... | 1055 | 4.4 | 470 | 7.9 | 25.5 | 0.90 | 7.1 | 97 | <10 | 70 | K110 |
| APR | | | | | | | | | | | |
| 13... | 1150 | 6.3 | 422 | 7.6 | 27.0 | 0.70 | 5.7 | 71 | <10 | K20 | K120 |
| JUN | | | | | | | | | | | |
| 15... | 1415 | 11 | 423 | 7.9 | 28.0 | 1.0 | 8.5 | 110 | <10 | 4900 | 680 |
| AUG | | | | | | | | | | | |
| 16... | 1300 | 11 | 392 | 7.4 | 26.0 | 340 | 5.2 | 64 | 16 | 200 | 70 |

| DATE | HARD-NESS TOTAL (MG/L AS CaCO3) | HARD-NESS NONCARB WH WAT TOT FLD (MG/L AS CaCO3) | CALCIUM DIS-SOLVED (MG/L AS Ca) | MAGNE-SIUM, DIS-SOLVED (MG/L AS Mg) | SODIUM, DIS-SOLVED (MG/L AS Na) | SODIUM AD-SORP-TION RATIO | POTAS-SIUM, DIS-SOLVED (MG/L AS K) | ALKA-LINITY WAT WH TOT FET FIELD (MG/L AS CaCO3) | SULFIDE TOTAL (MG/L AS S) | SULFATE DIS-SOLVED (MG/L AS SO4) | CHLO-RIDE, DIS-SOLVED (MG/L AS Cl) |
|----------|---------------------------------|--|---------------------------------|-------------------------------------|---------------------------------|---------------------------|------------------------------------|--|---------------------------|----------------------------------|------------------------------------|
| OCT 1992 | | | | | | | | | | | |
| 27... | 440 | 5 | 150 | 15 | 30 | 0.6 | 1.4 | 120 | <0.5 | 22 | 11 |
| DEC | | | | | | | | | | | |
| 08... | -- | -- | -- | -- | -- | -- | -- | 100 | -- | -- | -- |
| MAR 1993 | | | | | | | | | | | |
| 01... | -- | -- | -- | -- | -- | -- | -- | 160 | -- | -- | -- |
| APR | | | | | | | | | | | |
| 13... | 190 | 10 | 63 | 6.9 | 23 | 0.7 | 0.90 | 150 | <0.5 | 56 | 7.8 |
| JUN | | | | | | | | | | | |
| 15... | -- | -- | -- | -- | -- | -- | -- | 180 | -- | -- | -- |
| AUG | | | | | | | | | | | |
| 16... | 140 | 2 | 42 | 9.2 | 27 | 1 | 2.2 | 140 | -- | 45 | 22 |

| DATE | FLUO-RIDE, DIS-SOLVED (MG/L AS F) | SILICA, DIS-SOLVED (MG/L AS SiO2) | SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L) | SOLIDS, DIS-SOLVED (TONS PER DAY) | RESIDUE TOTAL AT 105 DEG. C, SUS-PENDED (MG/L) | NITRO-GEN, NITRATE TOTAL (MG/L AS N) | NITRO-GEN, NITRITE TOTAL (MG/L AS N) | NITRO-GEN, NO2+NO3 TOTAL (MG/L AS N) | NITRO-GEN, AMMONIA TOTAL (MG/L AS N) | NITRO-GEN, ORGANIC TOTAL (MG/L AS N) |
|----------|-----------------------------------|-----------------------------------|---|-----------------------------------|--|--------------------------------------|--------------------------------------|--------------------------------------|--------------------------------------|--------------------------------------|
| OCT 1992 | | | | | | | | | | |
| 27... | 0.20 | 27 | 578 | 18.7 | 3 | 11.0 | 0.010 | 11.0 | 0.020 | 0.48 |
| DEC | | | | | | | | | | |
| 08... | -- | -- | -- | -- | 2 | 0.860 | 0.040 | 0.900 | 0.050 | 0.35 |
| MAR 1993 | | | | | | | | | | |
| 01... | -- | -- | -- | -- | 5 | 0.890 | 0.010 | 0.900 | 0.010 | 0.29 |
| APR | | | | | | | | | | |
| 13... | 0.30 | 26 | 274 | 4.66 | 1 | 0.490 | 0.010 | 0.500 | 0.030 | 0.47 |
| JUN | | | | | | | | | | |
| 15... | -- | -- | -- | -- | 5 | 0.690 | 0.010 | 0.700 | 0.070 | 0.63 |
| AUG | | | | | | | | | | |
| 16... | 0.20 | 21 | 253 | 7.50 | 596 | 0.860 | 0.040 | 0.900 | 0.050 | 0.35 |

K = non-ideal count

50114000 RIO CERRILLOS NEAR PONCE, PR--Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993

| DATE | NITRO- GEN, AM- MONIA + ORGANIC TOTAL (MG/L AS N) | NITRO- GEN, TOTAL (MG/L AS N) | NITRO- GEN, TOTAL (MG/L AS NO3) | PHOS- PHORUS TOTAL (MG/L AS P) | ARSENIC TOTAL (UG/L AS AS) | BARIUM, TOTAL RECOV- ERABLE (UG/L AS BA) | BORON, TOTAL RECOV- ERABLE (UG/L AS B) | CADMIUM TOTAL RECOV- ERABLE (UG/L AS CD) | CHRO- MIUM, TOTAL RECOV- ERABLE (UG/L AS CR) | COPPER, TOTAL RECOV- ERABLE (UG/L AS CU) |
|-----------|---|---|---|--|-------------------------------------|---|---|---|--|---|
| OCT 1992 | | | | | | | | | | |
| 27... | 0.50 | 2.0 | 5.1 | 0.020 | <1 | <100 | 30 | <1 | <1 | 20 |
| DEC 08... | 0.40 | 0.5 | 4.7 | 0.030 | -- | -- | -- | -- | -- | -- |
| MAR 1993 | | | | | | | | | | |
| 01... | 0.30 | 1.2 | 7.9 | 0.010 | -- | -- | -- | -- | -- | -- |
| APR 13... | 0.50 | 1.6 | 3.1 | 0.010 | <1 | <100 | 40 | <1 | <1 | <10 |
| JUN 15... | 0.60 | 0.7 | 5.8 | 0.090 | -- | -- | -- | -- | -- | -- |
| AUG 16... | 0.40 | 0.5 | 4.7 | 0.030 | -- | -- | -- | -- | -- | -- |

[illegible]

RIO BUCANA BASIN

50114390 RIO BUCANA AT HWY 14 BRIDGE NEAR PONCE, PR

LOCATION.--Lat 18°02'29", long 66°34'58", Hydrologic Unit 21010004, on left bank, 200 ft (61 m) upstream from bridge on Highway 14 and 4.0 mi (6.4 km) downstream from Lago Cerrillos Dam, 2.8 mi (4.5 km) northeast of Degetau Plaza in Ponce.

DRAINAGE AREA.--24.9 mi² (64.5 km²).

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--October 1985 to September 1986 (maximum only), published as "Rio Bucaná Floodway Channel at Highway 14 bridge", October 1986 to July 1987 (maximum only), August 1987 to current year.

GAGE.--Water-stage recorder and crest-stage gage. Datum of gage is 116.40 ft (35.500 m) above mean sea level. Prior to Oct. 1, 1986, crest-stage gage located at Highway 14 bridge, at elevation of mean sea level.

REMARKS.--Records poor. Only minor regulation of low flow until Aug. 18, 1992, afterward flow regulated by Lago Cerrillos Dam 0.4 mi upstream. Gage-height and precipitation satellite telemetry at station.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993
DAILY MEAN VALUES

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|-------|-------|-------|-------|-------|-------|-------|-------|--------|--------|-------|--------|-------|
| 1 | 4.3 | 5.6 | 19 | 11 | 7.3 | 5.6 | 5.6 | 15 | 21 | 14 | 96 | 8.8 |
| 2 | 3.5 | 5.5 | 18 | 10 | 7.1 | 5.7 | 5.8 | 11 | 68 | 14 | 39 | 7.2 |
| 3 | 3.3 | 5.6 | 17 | 10 | 7.3 | 5.8 | 5.9 | 10 | 18 | 91 | 10 | 5.0 |
| 4 | 2.7 | 5.2 | 18 | 9.9 | 6.5 | 5.8 | 6.1 | 11 | 8.8 | 73 | 9.5 | 5.0 |
| 5 | 2.7 | 5.2 | 11 | 9.8 | 6.1 | 5.4 | 5.2 | 11 | 69 | 24 | 9.6 | 5.0 |
| 6 | 6.8 | 5.3 | 6.3 | 9.8 | 5.7 | 5.2 | 4.7 | 10 | 26 | 17 | 9.5 | 5.2 |
| 7 | 3.6 | 5.4 | 6.7 | 9.8 | 5.6 | 5.3 | 5.0 | 21 | 13 | 16 | 9.1 | 5.2 |
| 8 | 5.2 | 5.4 | 13 | 9.5 | 5.8 | 5.4 | 5.2 | 48 | 10 | 15 | 9.1 | 5.2 |
| 9 | 42 | 5.4 | 27 | 9.4 | 6.0 | 5.4 | 6.3 | 27 | 66 | 15 | 9.1 | 6.0 |
| 10 | 47 | 5.2 | 25 | 9.4 | 6.0 | 5.4 | 4.5 | 98 | 56 | 62 | 8.9 | 5.1 |
| 11 | 13 | 5.2 | 12 | 9.4 | 5.2 | 5.5 | 3.8 | 61 | 22 | 100 | 9.5 | 4.9 |
| 12 | 5.9 | 5.2 | 6.5 | 9.4 | 5.0 | 5.8 | 4.5 | 15 | 15 | 31 | 9.3 | 4.7 |
| 13 | 5.0 | 5.2 | 6.3 | 9.4 | 4.8 | 6.0 | 7.5 | 12 | 13 | 20 | 9.1 | 4.7 |
| 14 | 4.3 | 5.0 | 8.6 | 9.4 | 4.7 | 5.9 | 6.3 | 39 | 17 | 16 | 9.3 | 4.7 |
| 15 | 5.9 | 6.9 | 8.2 | 9.6 | 4.5 | 6.1 | 4.7 | 43 | 81 | 18 | 331 | 4.7 |
| 16 | 18 | 7.5 | 8.1 | 9.5 | 5.3 | 6.3 | 4.6 | 7.6 | 26 | 54 | 55 | 4.9 |
| 17 | 22 | 9.2 | 12 | 9.8 | 5.1 | 6.2 | 4.8 | 7.5 | 16 | 28 | 23 | 4.9 |
| 18 | 23 | 8.4 | 13 | 9.8 | 4.6 | 6.6 | 5.6 | 8.5 | 14 | 19 | 11 | 5.5 |
| 19 | 20 | 6.4 | 13 | 9.8 | 5.7 | 6.6 | 5.4 | 63 | 83 | 16 | 11 | 5.9 |
| 20 | 9.9 | 9.6 | 17 | 9.8 | 6.9 | 6.6 | 7.5 | 15 | 98 | 14 | 9.9 | 6.4 |
| 21 | 5.0 | 8.3 | 14 | 9.4 | 5.4 | 6.0 | 4.8 | 20 | 28 | 21 | 9.3 | 6.6 |
| 22 | 5.4 | 11 | 13 | 9.1 | 5.0 | 5.8 | 4.7 | 214 | 19 | 66 | 13 | 6.5 |
| 23 | 5.1 | 25 | 12 | 8.8 | 4.9 | 5.8 | 4.8 | 79 | 16 | 47 | 86 | 7.2 |
| 24 | 42 | 29 | 11 | 8.3 | 4.7 | 5.9 | 8.2 | 64 | 25 | 18 | 169 | 7.2 |
| 25 | 93 | 20 | 12 | 8.0 | 4.8 | 5.9 | 5.7 | 120 | 26 | 11 | 33 | 6.5 |
| 26 | 35 | 15 | 11 | 7.8 | 5.0 | 5.6 | 5.7 | 48 | 19 | 10 | 21 | 6.4 |
| 27 | 12 | 15 | 10 | 7.6 | 5.0 | 5.3 | 6.1 | 297 | 84 | 10 | 22 | 6.4 |
| 28 | 5.7 | 19 | 10 | 8.5 | 5.0 | 6.6 | 6.5 | 320 | 35 | 9.7 | 10 | 6.9 |
| 29 | 5.6 | 20 | 10 | 14 | --- | 5.9 | 8.0 | 185 | 19 | 9.6 | 8.7 | 11 |
| 30 | 6.1 | 31 | 10 | 9.7 | --- | 5.8 | 13 | 38 | 15 | 9.7 | 14 | 40 |
| 31 | 6.5 | --- | 11 | 7.8 | --- | 5.7 | --- | 86 | --- | 9.9 | 22 | --- |
| TOTAL | 469.5 | 315.7 | 389.7 | 293.5 | 155.0 | 180.9 | 176.5 | 2004.6 | 1026.8 | 878.9 | 1095.9 | 213.7 |
| MEAN | 15.1 | 10.5 | 12.6 | 9.47 | 5.54 | 5.84 | 5.88 | 64.7 | 34.2 | 28.4 | 35.4 | 7.12 |
| MAX | 93 | 31 | 27 | 14 | 7.3 | 6.6 | 13 | 320 | 98 | 100 | 331 | 40 |
| MIN | 2.7 | 5.0 | 6.3 | 7.6 | 4.5 | 5.2 | 3.8 | 7.5 | 8.8 | 9.6 | 8.7 | 4.7 |
| AC-FT | 931 | 626 | 773 | 582 | 307 | 359 | 350 | 3980 | 2040 | 1740 | 2170 | 424 |
| CFSM | .61 | .42 | .50 | .38 | .22 | .23 | .24 | 2.60 | 1.37 | 1.14 | 1.42 | .29 |
| IN. | .70 | .47 | .58 | .44 | .23 | .27 | .26 | 2.99 | 1.53 | 1.31 | 1.64 | .32 |

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1987 - 1993, BY WATER YEAR (WY)

| | 1987 | 1988 | 1989 | 1990 | 1991 | 1992 | 1993 |
|------|------|------|------|------|------|------|------|
| MEAN | 182 | 84.2 | 21.6 | 67.3 | 10.4 | 16.0 | 18.8 |
| MAX | 527 | 222 | 49.1 | 337 | 17.3 | 48.0 | 42.5 |
| (WY) | 1991 | 1988 | 1988 | 1992 | 1992 | 1989 | 1992 |
| MIN | 15.1 | 10.5 | 12.6 | 9.47 | 5.54 | 5.81 | 5.88 |
| (WY) | 1993 | 1993 | 1993 | 1993 | 1993 | 1990 | 1990 |

| SUMMARY STATISTICS | FOR 1992 CALENDAR YEAR | FOR 1993 WATER YEAR | WATER YEARS 1987 - 1993 |
|--------------------------|------------------------|---------------------|-------------------------|
| ANNUAL TOTAL | 19239.2 | 7200.7 | |
| ANNUAL MEAN | 52.6 | 19.7 | 55.1 |
| HIGHEST ANNUAL MEAN | | | 78.0 |
| LOWEST ANNUAL MEAN | | | 19.7 |
| HIGHEST DAILY MEAN | 4340 | 331 | 4340 |
| LOWEST DAILY MEAN | 2.5 | 2.7 | 2.5 |
| ANNUAL SEVEN-DAY MINIMUM | 2.8 | 3.8 | 2.8 |
| INSTANTANEOUS PEAK FLOW | | 1010 | 17400 |
| INSTANTANEOUS PEAK STAGE | | 10.13 | 13.48 |
| ANNUAL RUNOFF (AC-FT) | 38160 | 14280 | 39920 |
| ANNUAL RUNOFF (CFSM) | 2.11 | .79 | 2.21 |
| ANNUAL RUNOFF (INCHES) | 28.74 | 10.76 | 30.07 |
| 10 PERCENT EXCEEDS | 55 | 42 | 98 |
| 50 PERCENT EXCEEDS | 14 | 9.3 | 14 |
| 90 PERCENT EXCEEDS | 5.2 | 5.0 | 5.8 |

RIO PORTUGUES BASIN

50115000 RIO PORTUGUES NEAR PONCE, PR

LOCATION.--Lat 18°04'45", long 66°38'01", Hydrologic Unit 21010004, on right bank 30 ft (9 m) upstream from bridge on Highway 504, 0.2 mi (0.3 km) upstream from small unnamed tributary, 4.4 mi (7.1 km) upstream from Río Chiquito, and 4.7 mi (7.6 km) north of Plaza Degetau in Ponce.

DRAINAGE AREA.--8.82 mi² (22.84 km²).

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--February to June 1964 (monthly measurements only), July 1964 to current year.

GAGE.--Water-stage recorder. Elevation of gage is 470 ft (143 m), from topographic map. Prior to Dec. 4, 1964, non-recording gage at same site and datum.

REMARKS.--Records poor. Some low-flow regulation due to unknown activity upstream. Gage-height and precipitation satellite telemetry at station.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993
DAILY MEAN VALUES

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|-------|-------|------|------|-------|-------|-------|-------|--------|------|-------|-------|-------|
| 1 | 17 | 29 | 19 | 8.4 | 11 | 6.2 | 4.7 | 90 | e21 | 15 | 8.3 | 10 |
| 2 | 15 | 27 | 18 | 8.2 | 8.9 | 6.5 | 4.7 | 110 | e19 | 15 | 8.8 | 13 |
| 3 | 13 | 28 | 17 | 8.1 | 10 | 6.2 | 6.8 | 105 | e18 | 24 | 9.4 | 9.5 |
| 4 | 41 | 23 | 16 | 8.1 | 7.3 | 5.9 | 5.3 | 68 | e17 | 18 | 10 | 8.5 |
| 5 | e68 | 20 | 15 | 8.8 | 6.7 | 5.4 | 5.2 | 36 | e17 | 24 | 11 | 8.5 |
| 6 | e198 | 20 | 15 | 8.6 | 6.5 | 5.3 | 5.3 | 29 | e15 | 19 | 11 | 9.6 |
| 7 | e174 | 19 | 14 | 7.4 | 6.2 | 5.3 | 5.3 | 28 | e16 | 16 | 11 | 8.0 |
| 8 | e126 | 18 | 14 | 7.4 | 6.2 | 5.3 | 8.8 | 27 | e96 | 19 | 10 | 9.8 |
| 9 | e126 | 16 | 14 | 7.7 | 6.1 | 5.5 | 10 | 62 | e99 | 17 | 10 | 9.1 |
| 10 | 232 | 15 | 16 | 6.8 | 5.9 | 5.6 | 6.6 | 36 | 23 | 15 | 11 | 36 |
| 11 | 129 | 13 | e13 | 6.2 | 5.8 | 5.3 | 17 | 23 | 16 | 47 | 10 | 8.0 |
| 12 | 65 | 86 | e13 | 6.2 | 5.7 | 5.4 | 23 | 19 | 15 | 18 | 9.8 | 7.0 |
| 13 | 36 | 57 | e14 | 6.4 | 5.7 | 5.6 | 32 | 16 | 13 | 15 | 8.6 | 9.2 |
| 14 | 72 | 31 | e16 | 6.9 | 5.3 | 5.9 | 18 | 20 | 13 | 17 | 8.5 | 8.0 |
| 15 | e120 | 37 | e14 | 7.4 | 5.1 | 6.4 | 29 | 14 | 20 | 12 | 9.6 | 6.4 |
| 16 | 87 | 65 | e11 | 7.3 | 20 | 5.9 | 26 | 12 | 18 | 11 | 53 | 7.6 |
| 17 | 131 | 81 | e10 | 7.1 | 11 | 5.3 | 15 | 11 | 13 | 11 | 11 | 7.3 |
| 18 | 91 | 44 | 12 | 7.1 | 6.8 | 5.3 | 12 | 9.7 | 12 | 11 | 12 | 6.7 |
| 19 | 55 | 34 | 12 | 7.1 | 8.0 | 4.8 | 12 | 8.5 | 40 | 11 | 11 | 6.4 |
| 20 | 45 | e72 | 12 | 7.1 | 8.9 | 4.8 | 10 | 11 | 39 | 11 | 11 | 24 |
| 21 | 38 | e49 | 12 | 7.0 | 6.6 | 4.8 | 11 | 77 | 21 | 12 | 12 | 11 |
| 22 | 33 | 34 | 12 | 6.9 | 6.0 | 4.8 | 11 | 17 | 19 | 14 | 31 | 14 |
| 23 | 127 | 28 | 12 | 7.1 | 6.1 | 4.6 | 11 | 12 | 17 | 12 | 20 | 19 |
| 24 | e150 | 25 | 12 | 6.2 | 6.0 | 5.4 | 16 | 14 | 15 | 12 | 13 | 13 |
| 25 | e126 | 22 | 12 | 6.2 | 5.6 | 7.2 | 15 | 11 | 13 | 9.4 | 11 | 8.7 |
| 26 | 45 | 20 | 14 | 6.1 | 5.8 | 6.4 | 11 | 85 | 15 | 7.5 | 10 | 15 |
| 27 | 31 | 21 | 13 | 6.0 | 5.9 | 5.3 | e13 | 225 | 16 | 7.3 | 41 | 12 |
| 28 | 26 | 36 | 11 | 40 | 6.1 | 5.4 | e39 | 93 | 18 | 7.3 | 13 | 23 |
| 29 | 41 | 36 | e29 | 172 | --- | 5.1 | e136 | 37 | 16 | 7.2 | 7.8 | 22 |
| 30 | 36 | 24 | e18 | 39 | --- | 5.2 | 137 | 29 | 15 | 7.9 | 7.7 | 107 |
| 31 | 36 | --- | e10 | 19 | --- | 5.1 | --- | 33 | --- | 7.8 | 10 | --- |
| TOTAL | 2530 | 1030 | 440 | 463.8 | 205.2 | 171.2 | 656.7 | 1368.2 | 705 | 450.4 | 421.5 | 457.3 |
| MEAN | 81.6 | 34.3 | 14.2 | 15.0 | 7.33 | 5.52 | 21.9 | 44.1 | 23.5 | 14.5 | 13.6 | 15.2 |
| MAX | 232 | 86 | 29 | 172 | 20 | 7.2 | 137 | 225 | 99 | 47 | 53 | 107 |
| MIN | 13 | 13 | 10 | 6.0 | 5.1 | 4.6 | 4.7 | 8.5 | 12 | 7.2 | 7.7 | 6.4 |
| AC-FT | 5020 | 2040 | 873 | 920 | 407 | 340 | 1300 | 2710 | 1400 | 893 | 836 | 907 |
| CFSM | 9.25 | 3.89 | 1.61 | 1.70 | .83 | .63 | 2.48 | 5.00 | 2.66 | 1.65 | 1.54 | 1.73 |
| IN. | 10.67 | 4.34 | 1.86 | 1.96 | .87 | .72 | 2.77 | 5.77 | 2.97 | 1.90 | 1.78 | 1.93 |

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1964 - 1993, BY WATER YEAR (WY)

| | MEAN | 44.8 | 33.6 | 12.6 | 9.02 | 6.17 | 5.73 | 7.59 | 20.2 | 15.2 | 14.6 | 20.5 | 34.7 |
|------|------|------|------|------|------|------|------|------|------|------|------|------|------|
| MAX | 116 | 80.1 | 27.3 | 45.5 | 13.3 | 13.4 | 27.1 | 72.9 | 48.3 | 54.2 | 87.5 | 132 | |
| (WY) | 1991 | 1988 | 1988 | 1992 | 1976 | 1976 | 1983 | 1985 | 1979 | 1979 | 1979 | 1975 | |
| MIN | 11.9 | 5.85 | 2.71 | 3.65 | 2.62 | 2.08 | 2.45 | 1.65 | 2.33 | 2.65 | 4.20 | 7.22 | |
| (WY) | 1992 | 1992 | 1992 | 1989 | 1989 | 1977 | 1974 | 1973 | 1974 | 1976 | 1972 | 1991 | |

SUMMARY STATISTICS

FOR 1992 CALENDAR YEAR

FOR 1993 WATER YEAR

WATER YEARS 1964 - 1993

| | | | |
|--------------------------|--------|--------|-------|
| ANNUAL TOTAL | 8552.5 | 8899.3 | |
| ANNUAL MEAN | 23.4 | 24.4 | 18.7 |
| HIGHEST ANNUAL MEAN | | | 38.0 |
| LOWEST ANNUAL MEAN | | | 8.04 |
| HIGHEST DAILY MEAN | 794 | 232 | 2440 |
| LOWEST DAILY MEAN | 2.0 | 4.6 | 1.1 |
| ANNUAL SEVEN-DAY MINIMUM | 3.1 | 4.9 | 1.3 |
| INSTANTANEOUS PEAK FLOW | | 2850 | 21000 |
| INSTANTANEOUS PEAK STAGE | | 9.58 | 20.20 |
| INSTANTANEOUS LOW FLOW | | | 1.0 |
| ANNUAL RUNOFF (AC-FT) | 16960 | 17650 | 13550 |
| ANNUAL RUNOFF (CFSM) | 2.65 | 2.76 | 2.12 |
| ANNUAL RUNOFF (INCHES) | 36.07 | 37.53 | 28.80 |
| 10 PERCENT EXCEEDS | 45 | 56 | 40 |
| 50 PERCENT EXCEEDS | 10 | 12 | 8.4 |
| 90 PERCENT EXCEEDS | 3.8 | 5.9 | 3.1 |

e Estimated

RIO PORTUGUES BASIN

50115000 RIO PORTUGUES NEAR PONCE, PR--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Water years 1964 to current year.

WATER-QUALITY DATA, WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993

| DATE | TIME | DIS-CHARGE, INST. CUBIC FEET PER SECOND | SPE-CIFIC CON-DUCT-ANCE (US/CM) | PH WATER WHOLE FIELD (STAND-ARD UNITS) | TEMPER-ATURE WATER (DEG C) | TUR-BID-ITY (NTU) | OXYGEN, DIS-SOLVED (MG/L) | OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION) | OXYGEN DEMAND, CHEM-ICAL (HIGH LEVEL) (MG/L) | COLI-FORM, FECAL, 0.45 UM-MF (COLS./100 ML) | STREP-TOCOCCI FECAL, (COLS. PER 100 ML) |
|-----------|------|---|---------------------------------|--|----------------------------|-------------------|---------------------------|---|--|---|---|
| OCT 1992 | | | | | | | | | | | |
| 26... | 1415 | 36 | 252 | 7.6 | 24.5 | 49 | 5.0 | 60 | <10 | 760 | 480 |
| DEC 09... | 1000 | 14 | 324 | 8.2 | 20.9 | 13 | 8.5 | 104 | <10 | 230 | K170 |
| MAR 1993 | | | | | | | | | | | |
| 02... | 1130 | 6.4 | 310 | 8.1 | 21.5 | 0.40 | 9.1 | 110 | <10 | K170 | K70 |
| APR 14... | 1220 | 18 | 273 | 7.4 | 23.5 | 330 | 5.7 | 68 | 36 | K1500 | K1400 |
| JUN 16... | 1300 | 16 | 247 | 8.1 | 27.5 | 0.50 | 8.1 | 100 | 14 | 570 | 380 |
| AUG 17... | 1225 | 12 | 262 | 7.0 | 26.5 | 6.2 | 5.4 | 65 | 12 | 230 | K150 |

| DATE | HARD-NESS TOTAL (MG/L AS CaCO3) | HARD-NESS NONCARB WH WAT TOT FLD MG/L AS CaCO3 | CALCIUM DIS-SOLVED (MG/L AS Ca) | MAGNE-SIUM, DIS-SOLVED (MG/L AS Mg) | SODIUM, DIS-SOLVED (MG/L AS Na) | SODIUM AD-SORP-TION RATIO | POTAS-SIUM, DIS-SOLVED (MG/L AS K) | ALKALINITY WAT WH TOT FET FIELD MG/L AS CaCO3 | SULFIDE TOTAL (MG/L AS S) | SULFATE DIS-SOLVED (MG/L AS SO4) | CHLO-RIDE, DIS-SOLVED (MG/L AS Cl) |
|-----------|---------------------------------|--|---------------------------------|-------------------------------------|---------------------------------|---------------------------|------------------------------------|---|---------------------------|----------------------------------|------------------------------------|
| OCT 1992 | | | | | | | | | | | |
| 26... | 120 | 0 | 38 | 5.8 | 8.2 | 0.3 | 1.2 | 140 | <0.5 | 7.4 | 6.7 |
| DEC 09... | -- | -- | -- | -- | -- | -- | -- | 140 | -- | -- | -- |
| MAR 1993 | | | | | | | | | | | |
| 02... | -- | -- | -- | -- | -- | -- | -- | 140 | -- | -- | -- |
| APR 14... | 69 | 0 | 19 | 5.3 | 11 | 0.6 | 3.0 | 97 | <0.5 | 16 | 11 |
| JUN 16... | -- | -- | -- | -- | -- | -- | -- | 130 | -- | -- | -- |
| AUG 17... | 200 | 1 | 53 | 16 | 34 | 1 | 4.0 | 60 | -- | 33 | 34 |

| DATE | FLUO-RIDE, DIS-SOLVED (MG/L AS F) | SILICA, DIS-SOLVED (MG/L AS SiO2) | SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L) | SOLIDS, DIS-SOLVED (TONS PER DAY) | RESIDUE TOTAL AT 105 DEG. C, SUS-PENDED (MG/L) | NITRO-GEN, NITRATE TOTAL (MG/L AS N) | NITRO-GEN, NITRITE TOTAL (MG/L AS N) | NITRO-GEN, NO2+NO3 TOTAL (MG/L AS N) | NITRO-GEN, AMMONIA TOTAL (MG/L AS N) | NITRO-GEN, ORGANIC TOTAL (MG/L AS N) |
|-----------|-----------------------------------|-----------------------------------|---|-----------------------------------|--|--------------------------------------|--------------------------------------|--------------------------------------|--------------------------------------|--------------------------------------|
| OCT 1992 | | | | | | | | | | |
| 26... | 0.10 | 23 | 174 | 16.9 | 12 | 1.30 | <0.010 | 1.30 | 0.010 | 0.19 |
| DEC 09... | -- | -- | -- | -- | <1 | 0.590 | 0.010 | 1.10 | 0.010 | 0.29 |
| MAR 1993 | | | | | | | | | | |
| 02... | -- | -- | -- | -- | <1 | 1.09 | 0.010 | 1.10 | 0.010 | 0.29 |
| APR 14... | <0.10 | 20 | 143 | 7.13 | 1000 | 0.990 | 0.010 | 1.00 | 0.010 | 0.59 |
| JUN 16... | -- | -- | -- | -- | 24 | 0.890 | 0.010 | 0.900 | 0.010 | 0.29 |
| AUG 17... | 0.20 | 31 | 241 | 7.81 | 4 | 0.590 | 0.010 | 0.600 | 0.030 | 0.27 |

K = non-ideal count

50115000 RIO PORTUGUES NEAR PONCE, PR--Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993

[illegible]

RIO PORTUGUES BASIN

50116200 RIO PORTUGUES AT PONCE, PR

WATER-QUALITY RECORDS

LOCATION.--Lat 18°00'20", long 66°36'28", 1,300 ft (400 m) south of Las Americas Avenue Bridge, 1.2 mi (1.9 km) south of CSC 50115900, 0.8 mi (1.3 km) west of Highways 1 and 2 junction, and 0.7 mi (1.1 km) southeast of Ponce.

DRAINAGE AREA.--18.9 mi² (49.0 km²).

PERIOD OF RECORD.--Water years 1979 to current year.

WATER-QUALITY DATA, WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993

| DATE | TIME | DIS-CHARGE, INST. CUBIC FEET PER SECOND | SPE-CIFIC CON-DUCT-ANCE (US/CM) | PH WATER WHOLE FIELD (STAND-ARD UNITS) | TEMPER-ATURE WATER (DEG C) | TUR-BID-ITY (NTU) | OXYGEN, DIS-SOLVED (MG/L) | OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION) | OXYGEN DEMAND, CHEM-ICAL (HIGH LEVEL) (MG/L) | COLI-FORM, FECAL, 0.45 UM-MF (COLS./100 ML) | STREP-TOCOCCI, FECAL, (COLS. PER 100 ML) |
|-----------|------|---|---------------------------------|--|----------------------------|-------------------|---------------------------|---|--|---|--|
| OCT 1992 | | | | | | | | | | | |
| 28... | 1335 | 4.6 | 297 | 7.8 | 30.0 | 10 | 5.3 | 70 | <10 | K1400 | K160 |
| DEC 09... | 1125 | 5.6 | 418 | 7.9 | 24.2 | 12 | 9.6 | 110 | <10 | 4900 | 440 |
| MAR 1993 | | | | | | | | | | | |
| 02... | 1240 | 10 | 475 | 7.8 | 26.0 | 15 | 7.3 | 88 | 17 | K7300 | K890 |
| APR 14... | 1350 | 40 | 365 | 7.5 | 30.5 | 240 | 5.3 | 70 | 15 | 27000 | 5400 |
| JUN 24... | 1330 | 16 | 340 | 7.7 | 32.5 | 4.1 | 6.1 | 74 | 34 | 4400 | 21000 |
| AUG 17... | 1400 | 23 | 395 | 7.5 | 32.5 | 22 | 6.1 | 79 | <10 | 21000 | 3800 |

| DATE | HARD-NESS TOTAL (MG/L AS CACO3) | HARD-NESS NONCARB WH WAT TOT FLD MG/L AS CACO3 | CALCIUM DIS-SOLVED (MG/L AS CA) | MAGNE-SIUM, DIS-SOLVED (MG/L AS MG) | SODIUM, DIS-SOLVED (MG/L AS NA) | SODIUM AD-SORP-TION RATIO | POTAS-SIUM, DIS-SOLVED (MG/L AS K) | ALKA-LINITY WAT WH TOT FET FIELD MG/L AS CACO3 | SULFIDE TOTAL (MG/L AS S) | SULFATE DIS-SOLVED (MG/L AS SO4) | CHLO-RIDE, DIS-SOLVED (MG/L AS CL) |
|-----------|---------------------------------|--|---------------------------------|-------------------------------------|---------------------------------|---------------------------|------------------------------------|--|---------------------------|----------------------------------|------------------------------------|
| OCT 1992 | | | | | | | | | | | |
| 28... | 110 | 0 | 33 | 6.1 | 14 | 0.2 | 2.4 | 120 | <0.5 | 23 | 36 |
| DEC 09... | -- | -- | -- | -- | -- | -- | -- | 130 | -- | -- | -- |
| MAR 1993 | | | | | | | | | | | |
| 02... | -- | -- | -- | -- | -- | -- | -- | 130 | -- | -- | -- |
| APR 14... | 120 | 3 | 35 | 6.7 | 16 | 0.6 | 1.7 | 110 | <0.5 | 19 | 14 |
| JUN 24... | -- | -- | -- | -- | -- | -- | -- | 180 | -- | -- | -- |
| AUG 17... | 180 | 17 | 61 | 6.7 | 18 | 0.6 | 0.90 | 160 | -- | 45 | 7.0 |

| DATE | FLUO-RIDE, DIS-SOLVED (MG/L AS F) | SILICA, DIS-SOLVED (MG/L AS SIO2) | SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L) | SOLIDS, DIS-SOLVED (TONS PER DAY) | RESIDUE TOTAL AT 105 DEG. C, SUS-PENDED (MG/L) | NITRO-GEN, NITRATE TOTAL (MG/L AS N) | NITRO-GEN, NITRITE TOTAL (MG/L AS N) | NITRO-GEN, NO2+NO3 TOTAL (MG/L AS N) | NITRO-GEN, AMMONIA TOTAL (MG/L AS N) | NITRO-GEN, ORGANIC TOTAL (MG/L AS N) |
|-----------|-----------------------------------|-----------------------------------|---|-----------------------------------|--|--------------------------------------|--------------------------------------|--------------------------------------|--------------------------------------|--------------------------------------|
| OCT 1992 | | | | | | | | | | |
| 28... | 0.10 | 21 | 320 | 3.97 | <1 | 0.940 | 0.010 | 0.950 | 0.030 | 0.27 |
| DEC 09... | -- | -- | -- | -- | 26 | 0.660 | 0.040 | 0.700 | 0.090 | 0.31 |
| MAR 1993 | | | | | | | | | | |
| 02... | -- | -- | -- | -- | 26 | 0.900 | 0.100 | 1.00 | 0.260 | 0.44 |
| APR 14... | 0.10 | 20 | 178 | 19.5 | 740 | 1.08 | 0.020 | 1.10 | 0.410 | 0.19 |
| JUN 24... | -- | -- | -- | -- | 20 | 0.580 | 0.020 | 0.600 | 0.060 | 0.84 |
| AUG 17... | 0.20 | 22 | 257 | 15.9 | 22 | 0.470 | 0.030 | 0.500 | 0.110 | 2.2 |

K = non-ideal count

50116200 RIO PORTUGUES AT PONCE, PR--Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993

| DATE | NITRO- GEN, AM- MONIA + ORGANIC TOTAL (MG/L AS N) | NITRO- GEN, TOTAL (MG/L AS N) | NITRO- GEN, TOTAL (MG/L AS NO3) | PHOS- PHORUS TOTAL (MG/L AS P) | ARSENIC TOTAL (UG/L AS AS) | BARIUM, TOTAL RECOV- ERABLE (UG/L AS BA) | BORON, TOTAL RECOV- ERABLE (UG/L AS B) | CADMIUM TOTAL RECOV- ERABLE (UG/L AS CD) | CHRO- MIUM, TOTAL RECOV- ERABLE (UG/L AS CR) | COPPER, TOTAL RECOV- ERABLE (UG/L AS CU) |
|----------|---|---|---|--|-------------------------------------|---|---|---|--|---|
| OCT 1992 | | | | | | | | | | |
| 28... | 0.30 | 1.2 | 5.5 | 0.130 | <1 | <100 | <10 | <1 | 4 | <10 |
| DEC | | | | | | | | | | |
| 09... | 0.40 | 1.1 | 4.8 | 0.150 | -- | -- | -- | -- | -- | -- |
| MAR 1993 | | | | | | | | | | |
| 02... | 0.70 | 0.50 | 1.7 | 0.100 | -- | -- | -- | -- | -- | -- |
| APR | | | | | | | | | | |
| 14... | 0.60 | 1.5 | 1.3 | 0.160 | <1 | <100 | 40 | <1 | 4 | 20 |
| JUN | | | | | | | | | | |
| 24... | 0.90 | 1.3 | 6.6 | 0.080 | -- | -- | -- | -- | -- | -- |
| AUG | | | | | | | | | | |
| 17... | 2.3 | 2.8 | 12 | 0.060 | -- | -- | -- | -- | -- | -- |

| DATE | IRON, TOTAL RECOV- ERABLE (UG/L AS FE) | LEAD, TOTAL RECOV- ERABLE (UG/L AS PB) | MANGA- NESE, TOTAL RECOV- ERABLE (UG/L AS MN) | MERCURY TOTAL RECOV- ERABLE (UG/L AS HG) | SELE- NIUM, TOTAL (UG/L AS SE) | SILVER, TOTAL RECOV- ERABLE (UG/L AS AG) | ZINC, TOTAL RECOV- ERABLE (UG/L AS ZN) | CYANIDE TOTAL (MG/L AS CN) | PHENOLS TOTAL (UG/L) | METHY- LENE BLUE ACTIVE SUB- STANCE (MG/L) |
|----------|---|---|---|---|--|---|---|-------------------------------------|----------------------------|--|
| OCT 1992 | | | | | | | | | | |
| 28... | 21000 | 5 | 700 | <0.10 | <1 | <1 | <10 | <0.010 | 2 | 0.06 |
| DEC | | | | | | | | | | |
| 09... | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| MAR 1993 | | | | | | | | | | |
| 02... | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| APR | | | | | | | | | | |
| 14... | 11000 | 4 | 530 | <0.10 | <1 | <1 | 50 | <0.010 | <1 | 0.02 |
| JUN | | | | | | | | | | |
| 16... | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| AUG | | | | | | | | | | |
| 17... | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |

PESTICIDE ANALYSES

| DATE | TIME | PCB, TOTAL (UG/L) | ALDRIN, TOTAL (UG/L) | CHLOR- DANE, TOTAL (UG/L) | DDD, TOTAL (UG/L) | DDE, TOTAL (UG/L) | DDT, TOTAL (UG/L) | DI- AZINON, TOTAL (UG/L) | DI- ELDRIN TOTAL (UG/L) | ENDO- SULFAN, TOTAL (UG/L) |
|----------|------|-------------------------|----------------------------|------------------------------------|-------------------------|-------------------------|-------------------------|-----------------------------------|----------------------------------|-------------------------------------|
| JUL 1993 | | | | | | | | | | |
| 01... | 1145 | <0.1 | <0.010 | <0.1 | <0.010 | <0.010 | <0.010 | <0.01 | <0.010 | <0.010 |

| DATE | ENDRIN WATER UNFLTRD REC (UG/L) | ETHION, TOTAL (UG/L) | HEPTA- CHLOR, TOTAL (UG/L) | HEPTA- CHLOR EPOXIDE TOTAL (UG/L) | LINDANE TOTAL (UG/L) | MALA- THION, TOTAL (UG/L) | METH- OXY- CHLOR, TOTAL (UG/L) | METHYL PARA- THION, TOTAL (UG/L) | MIREX, TOTAL (UG/L) |
|----------|---|----------------------------|-------------------------------------|---|----------------------------|------------------------------------|--|--|---------------------------|
| JUL 1993 | | | | | | | | | |
| 01... | <0.010 | <0.01 | <0.010 | <0.010 | <0.010 | <0.01 | <0.01 | <0.01 | <0.01 |

| DATE | PARA- THION, TOTAL (UG/L) | NAPH- THA- LENES, POLY- CHLOR. TOTAL (UG/L) | PER- THANE TOTAL (UG/L) | TOX- APHENE, TOTAL (UG/L) | TOTAL TRI- THION (UG/L) | 2,4-D, TOTAL (UG/L) | 2,4,5-T TOTAL (UG/L) | 2,4-DP TOTAL (UG/L) | SILVEX, TOTAL (UG/L) |
|----------|------------------------------------|---|----------------------------------|------------------------------------|----------------------------------|---------------------------|----------------------------|---------------------------|----------------------------|
| JUL 1993 | | | | | | | | | |
| 01... | <0.01 | <0.10 | <0.1 | <1 | <0.01 | <0.01 | <0.01 | <0.01 | <0.01 |

RIO GUAYANILLA BASIN

50124200 RIO GUAYANILLA NEAR GUAYANILLA, PR

LOCATION.--Lat 18°02'40", long 66°47'53", Hydrologic Unit 21010004, on left bank, 0.7 mi (1.1 km) north of junction of Highways 2 and 132, 0.6 mi (1.0 km) downstream from Quebrada Consejo, 1.8 mi (2.9 km) north-northwest from Plaza de Guayanilla.

DRAINAGE AREA.--18.9 mi² (49.0 km²).

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--March 1981 to current year.

GAGE.--Water-stage recorder. Elevation of gage is 80 ft (24 m), from topographic map.

REMARKS.--Records fair except those for estimated daily discharges, which are poor. Gage-height and precipitation satellite telemetry at station.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993
DAILY MEAN VALUES

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|-------|------|------|------|-------|-------|-------|-------|--------|-------|-------|-------|-------|
| 1 | 103 | 48 | 46 | 18 | 15 | 4.5 | 3.2 | 123 | 20 | 23 | 6.3 | 15 |
| 2 | 65 | 46 | 35 | 14 | 12 | 5.0 | 3.0 | 142 | 17 | 21 | 5.4 | 24 |
| 3 | 24 | 55 | 30 | 14 | 15 | 4.9 | 2.9 | 169 | 15 | 23 | 5.4 | 18 |
| 4 | 20 | 39 | 29 | 13 | 11 | 4.6 | 3.0 | 162 | 13 | 22 | 5.2 | 11 |
| 5 | 99 | 34 | 25 | 12 | 9.6 | 4.6 | 3.1 | 68 | 11 | 25 | 7.0 | 12 |
| 6 | 299 | 31 | 24 | 12 | 8.9 | 4.9 | 3.1 | 39 | 9.2 | 36 | 6.3 | 7.9 |
| 7 | 208 | 29 | 22 | 12 | 8.5 | 5.0 | 3.3 | 32 | 9.2 | 33 | 5.5 | 8.4 |
| 8 | 149 | 25 | 20 | 12 | 7.6 | 4.6 | 3.1 | 23 | 33 | 28 | 4.6 | 27 |
| 9 | 231 | 23 | 18 | 11 | 6.8 | 4.8 | 16 | 218 | 28 | 21 | 4.6 | 39 |
| 10 | 286 | 22 | 17 | 11 | 6.8 | 4.6 | 11 | 109 | 21 | 17 | 4.6 | 16 |
| 11 | 184 | 20 | 16 | 11 | 6.7 | 4.2 | 6.5 | 47 | 15 | 19 | 4.7 | 17 |
| 12 | 89 | 68 | 15 | 11 | 6.3 | 3.9 | 14 | 30 | 13 | 23 | 5.3 | 8.4 |
| 13 | 67 | 136 | 32 | 11 | 6.3 | 4.0 | 10 | 22 | 19 | 17 | 4.5 | 8.6 |
| 14 | 76 | 91 | 61 | 11 | 6.2 | 4.0 | 8.8 | 20 | 14 | 27 | 4.1 | 12 |
| 15 | 129 | 82 | 50 | 11 | 8.5 | 4.3 | 13 | 16 | 16 | 17 | 7.9 | 7.1 |
| 16 | 121 | 84 | 27 | 11 | 28 | 4.2 | 28 | 21 | 17 | 15 | 66 | 30 |
| 17 | 88 | 186 | 22 | 11 | 18 | 3.8 | 8.2 | 16 | 12 | 14 | 22 | 27 |
| 18 | 71 | 173 | 19 | 11 | 7.1 | 3.9 | 5.2 | 11 | 63 | 11 | 10 | 13 |
| 19 | 59 | 98 | 17 | 11 | 18 | 3.7 | 17 | 9.9 | 157 | 10 | 7.8 | 8.9 |
| 20 | 61 | 86 | 16 | 11 | 11 | 3.9 | 13 | 13 | 97 | 10 | 6.9 | 9.8 |
| 21 | 49 | 69 | 16 | 11 | 4.8 | 3.7 | 12 | 13 | 44 | 8.5 | 6.3 | 12 |
| 22 | 50 | 55 | 15 | 11 | 4.0 | 3.6 | 7.8 | 13 | 31 | 8.0 | 97 | 7.0 |
| 23 | 65 | 48 | 14 | 12 | 3.9 | 7.1 | 5.8 | 9.6 | 24 | 12 | 103 | 105 |
| 24 | 137 | 42 | 14 | 9.2 | 17 | 6.6 | 5.0 | 27 | 19 | 8.7 | 35 | 38 |
| 25 | 125 | 37 | 13 | 9.1 | 19 | 4.4 | 4.5 | 35 | 17 | 9.5 | 18 | 18 |
| 26 | 78 | 34 | 18 | 8.6 | 6.2 | 4.3 | 3.8 | 79 | 15 | 8.6 | 13 | 130 |
| 27 | 62 | 41 | 16 | 7.6 | 5.2 | 4.3 | 3.4 | 195 | e13 | 7.7 | 23 | 80 |
| 28 | 53 | 38 | 13 | 19 | 4.3 | 4.4 | 39 | 106 | e18 | 8.5 | 55 | 50 |
| 29 | 69 | 65 | 12 | 73 | --- | 4.0 | 60 | 41 | 32 | 7.6 | 47 | 33 |
| 30 | 83 | 66 | 15 | 27 | --- | 4.0 | 187 | 30 | 27 | 6.8 | 50 | 42 |
| 31 | 61 | --- | 46 | 17 | --- | 3.8 | --- | 23 | --- | 6.3 | 21 | --- |
| TOTAL | 3261 | 1871 | 733 | 443.5 | 281.7 | 137.6 | 503.7 | 1862.5 | 839.4 | 504.2 | 662.4 | 835.1 |
| MEAN | 105 | 62.4 | 23.6 | 14.3 | 10.1 | 4.44 | 16.8 | 60.1 | 28.0 | 16.3 | 21.4 | 27.8 |
| MAX | 299 | 186 | 61 | 73 | 28 | 7.1 | 187 | 218 | 157 | 36 | 103 | 130 |
| MIN | 20 | 20 | 12 | 7.6 | 3.9 | 3.6 | 2.9 | 9.6 | 9.2 | 6.3 | 4.1 | 7.0 |
| AC-FT | 6470 | 3710 | 1450 | 880 | 559 | 273 | 999 | 3690 | 1660 | 1000 | 1310 | 1660 |
| CFSM | 5.57 | 3.30 | 1.25 | .76 | .53 | .23 | .89 | 3.18 | 1.48 | .86 | 1.13 | 1.47 |
| IN. | 6.42 | 3.68 | 1.44 | .87 | .55 | .27 | .99 | 3.67 | 1.65 | .99 | 1.30 | 1.64 |

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1981 - 1993, BY WATER YEAR (WY)

| | MEAN | 68.1 | 54.0 | 20.4 | 11.3 | 7.41 | 6.06 | 11.2 | 31.1 | 15.9 | 12.5 | 18.7 | 40.9 |
|------|------|------|------|------|------|------|------|------|------|------|------|------|------|
| MAX | 167 | 110 | 41.9 | 27.5 | 11.4 | 13.2 | 26.6 | 80.4 | 41.0 | 25.9 | 48.5 | 102 | |
| (WY) | 1986 | 1988 | 1988 | 1992 | 1985 | 1989 | 1983 | 1985 | 1987 | 1986 | 1988 | 1981 | |
| MIN | 16.0 | 21.5 | 11.9 | 6.97 | 3.10 | 2.85 | 4.39 | 5.83 | 3.28 | 5.22 | 6.72 | 7.46 | |
| (WY) | 1983 | 1989 | 1989 | 1991 | 1990 | 1981 | 1984 | 1988 | 1991 | 1990 | 1985 | 1983 | |

SUMMARY STATISTICS

FOR 1992 CALENDAR YEAR

FOR 1993 WATER YEAR

WATER YEARS 1981 - 1993

| | | | |
|--------------------------|---------|---------|-------|
| ANNUAL TOTAL | 11551.8 | 11935.1 | |
| ANNUAL MEAN | 31.6 | 32.7 | 24.4 |
| HIGHEST ANNUAL MEAN | | | 33.1 |
| LOWEST ANNUAL MEAN | | | 16.3 |
| HIGHEST DAILY MEAN | 408 | 299 | 1500 |
| LOWEST DAILY MEAN | 3.2 | 2.9 | .97 |
| ANNUAL SEVEN-DAY MINIMUM | 3.4 | 3.1 | 1.7 |
| INSTANTANEOUS PEAK FLOW | | 1190 | 14700 |
| INSTANTANEOUS PEAK STAGE | | 10.13 | 20.40 |
| ANNUAL RUNOFF (AC-FT) | 22910 | 23670 | 17690 |
| ANNUAL RUNOFF (CFSM) | 1.67 | 1.73 | 1.29 |
| ANNUAL RUNOFF (INCHES) | 22.74 | 23.49 | 17.55 |
| 10 PERCENT EXCEEDS | 70 | 83 | 53 |
| 50 PERCENT EXCEEDS | 15 | 16 | 10 |
| 90 PERCENT EXCEEDS | 4.9 | 4.6 | 3.9 |

e Estimated

RIO GUAYANILLA BASIN

50124700 RIO GUAYANILLA AT CENTRAL RUFINA, PR

WATER-QUALITY RECORDS

LOCATION.--Lat 18°00'40", long 66°46'49", at dirt road bridge, 0.7 mi (1.1 km) from mouth, 0.9 mi (1.4 km) east of Central Rufina and 0.9 mi (1.4 km) southeast of Guayanilla.

DRAINAGE AREA.--22.8 mi² (59.1 km²).

PERIOD OF RECORD.--Water years 1960-65, 1974 to current year.

WATER-QUALITY DATA, WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993

| DATE | TIME | DIS-CHARGE, INST. CUBIC FEET PER SECOND | SPECIFIC CONDUCTANCE (US/CM) | PH WATER WHOLE FIELD (STANDARD UNITS) | TEMPERATURE WATER (DEG C) | TURBIDITY (NTU) | OXYGEN, DIS-SOLVED (MG/L) | OXYGEN, DIS-SOLVED (PER-CENT SATURATION) | OXYGEN DEMAND, CHEMICAL (HIGH LEVEL) (MG/L) | COLIFORM, FECAL, 0.45 UM-MF (COLS./100 ML) | STREPTOCOCCI, FECAL, (COLS. PER 100 ML) |
|-----------|------|---|------------------------------|---------------------------------------|---------------------------|-----------------|---------------------------|--|---|--|---|
| OCT 1992 | | | | | | | | | | | |
| 29... | 1210 | 9.3 | 405 | 7.7 | 29.0 | 2.1 | 5.8 | 74 | <10 | K1000 | K100 |
| DEC 10... | 1105 | 11 | 430 | 8.2 | 25.0 | 3.6 | 8.2 | 91 | <10 | 10 | 10 |
| FEB 1993 | | | | | | | | | | | |
| 19... | 1230 | 4.3 | 528 | 7.8 | 27.0 | 5.6 | 9.4 | 108 | 21 | K10 | K10 |
| APR 21... | 1550 | 3.7 | 516 | 7.6 | 32.0 | 4.5 | 4.1 | 54 | 12 | K30 | 50 |
| JUN 24... | 1220 | 15 | 316 | 7.6 | 32.0 | 0.40 | 5.3 | 69 | 22 | 10 | 10 |
| AUG 18... | 1200 | 4.0 | 490 | 7.3 | 30.5 | 4.8 | 5.0 | 65 | <10 | 10 | 10 |

| DATE | HARDNESS TOTAL (MG/L AS CaCO3) | HARDNESS NONCARB WH WAT TOT FLD (MG/L AS CaCO3) | CALCIUM DIS-SOLVED (MG/L AS Ca) | MAGNESIUM, DIS-SOLVED (MG/L AS Mg) | SODIUM, DIS-SOLVED (MG/L AS Na) | SODIUM ADSORPTION RATIO | POTASSIUM, DIS-SOLVED (MG/L AS K) | ALKALINITY WAT WH TOT FLD (MG/L AS CaCO3) | SULFIDE TOTAL (MG/L AS S) | SULFATE DIS-SOLVED (MG/L AS SO4) | CHLORIDE, DIS-SOLVED (MG/L AS Cl) |
|-----------|--------------------------------|---|---------------------------------|------------------------------------|---------------------------------|-------------------------|-----------------------------------|---|---------------------------|----------------------------------|-----------------------------------|
| OCT 1992 | | | | | | | | | | | |
| 29... | 130 | 20 | 44 | 11 | 18 | 0.5 | 4.0 | 160 | <0.5 | 40 | 18 |
| DEC 10... | -- | -- | -- | -- | -- | -- | -- | 170 | -- | -- | -- |
| FEB 1993 | | | | | | | | | | | |
| 19... | -- | -- | -- | -- | -- | -- | -- | 160 | -- | -- | -- |
| APR 21... | 170 | 17 | 42 | 15 | 21 | 0.7 | 2.4 | 130 | <0.5 | 41 | 20 |
| JUN 24... | -- | -- | -- | -- | -- | -- | -- | 150 | -- | -- | -- |
| AUG 18... | 180 | 5 | 50 | 14 | 25 | 0.8 | 2.0 | 130 | -- | 48 | 22 |

| DATE | FLUORIDE, DIS-SOLVED (MG/L AS F) | SILICA, DIS-SOLVED (MG/L AS SiO2) | SOLIDS, SUM OF CONSTITUENTS, DIS-SOLVED (MG/L) | SOLIDS, DIS-SOLVED (TONS PER DAY) | RESIDUE TOTAL AT 105 DEG. C, SUSPENDED (MG/L) | NITROGEN, NITRATE TOTAL (MG/L AS N) | NITROGEN, NITRITE TOTAL (MG/L AS N) | NITROGEN, NO2+NO3 TOTAL (MG/L AS N) | NITROGEN, AMMONIA TOTAL (MG/L AS N) | NITROGEN, ORGANIC TOTAL (MG/L AS N) |
|-----------|----------------------------------|-----------------------------------|--|-----------------------------------|---|-------------------------------------|-------------------------------------|-------------------------------------|-------------------------------------|-------------------------------------|
| OCT 1992 | | | | | | | | | | |
| 29... | <0.10 | 22 | 219 | 5.50 | <1 | 1.38 | 0.020 | 1.40 | 0.020 | 0.38 |
| DEC 10... | -- | -- | -- | -- | 23 | 0.780 | 0.020 | 0.800 | 0.580 | 0.22 |
| FEB 1993 | | | | | | | | | | |
| 19... | -- | -- | -- | -- | 4 | 1.28 | 0.020 | 1.30 | 0.250 | 0.75 |
| APR 21... | 0.10 | 19 | 238 | 2.38 | 20 | 0.570 | 0.030 | 0.600 | 0.780 | 0.92 |
| JUN 24... | -- | -- | -- | -- | 9 | 1.47 | 0.030 | 1.50 | 1.10 | 1.1 |
| AUG 18... | 0.10 | 20 | 259 | 2.80 | 15 | 1.28 | 0.020 | 1.30 | 0.250 | 0.75 |

K = non-ideal count

RIO GUAYANILLA BASIN

50124700 RIO GUAYANILLA AT CENTRAL RUFINA, PR--Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993

| DATE | NITRO- GEN, AM- MONIA + ORGANIC TOTAL (MG/L AS N) | NITRO- GEN, TOTAL (MG/L AS N) | NITRO- GEN, TOTAL (MG/L AS NO3) | PHOS- PHORUS TOTAL (MG/L AS P) | ARSENIC TOTAL (UG/L AS AS) | BARIUM, TOTAL RECOV- ERABLE (UG/L AS BA) | BORON, TOTAL RECOV- ERABLE (UG/L AS B) | CADMIUM TOTAL RECOV- ERABLE (UG/L AS CD) | CHRO- MIUM, TOTAL RECOV- ERABLE (UG/L AS CR) | COPPER, TOTAL RECOV- ERABLE (UG/L AS CU) |
|-------------------|---|---|---|--|-------------------------------------|---|---|---|--|---|
| OCT 1992 29... | 0.40 | 1.8 | 8.0 | 0.240 | <1 | <100 | 30 | <1 | <1 | <10 |
| DEC 10... | 0.80 | 1.6 | 18 | 0.370 | -- | -- | -- | -- | -- | -- |
| FEB 1993 19... | 1.0 | 2.3 | 10 | 0.740 | -- | -- | -- | -- | -- | -- |
| APR 21... | 1.7 | 3.7 | 16 | 0.660 | 1 | <100 | 50 | <1 | <1 | <10 |
| JUN 24... | 2.2 | 4.2 | 12 | 0.220 | -- | -- | -- | -- | -- | -- |
| AUG 18... | 1.0 | 2.5 | 9 | 0.600 | -- | -- | -- | -- | -- | -- |

| DATE | IRON, TOTAL RECOV- ERABLE (UG/L AS FE) | LEAD, TOTAL RECOV- ERABLE (UG/L AS PB) | MANGA- NESE, TOTAL RECOV- ERABLE (UG/L AS MN) | MERCURY TOTAL RECOV- ERABLE (UG/L AS HG) | SELE- NIUM, TOTAL (UG/L AS SE) | SILVER, TOTAL RECOV- ERABLE (UG/L AS AG) | ZINC, TOTAL RECOV- ERABLE (UG/L AS ZN) | CYANIDE TOTAL (MG/L AS CN) | PHENOLS TOTAL (UG/L) | METHY- LENE BLUE ACTIVE SUB- STANCE (MG/L) |
|-------------------|---|---|---|---|--|---|---|-------------------------------------|----------------------------|--|
| OCT 1992 29... | 1900 | 3 | 70 | <0.10 | <1 | <1 | 30 | <0.010 | 6 | 0.05 |
| DEC 10... | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| FEB 1993 19... | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| APR 21... | 430 | 1 | 50 | <0.10 | <1 | <1 | 20 | <0.010 | 2 | 0.09 |
| JUN 24... | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| AUG 18... | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |

PESTICIDE ANALYSES

| DATE | TIME | PCB, TOTAL (UG/L) | ALDRIN, TOTAL (UG/L) | CHLOR- DANE, TOTAL (UG/L) | DDD, TOTAL (UG/L) | DDE, TOTAL (UG/L) | DDT, TOTAL (UG/L) | DI- AZINON, TOTAL (UG/L) | DI- ELDRIN TOTAL (UG/L) | ENDO- SULFAN, TOTAL (UG/L) |
|-------------------|------|-------------------------|----------------------------|------------------------------------|-------------------------|-------------------------|-------------------------|-----------------------------------|----------------------------------|-------------------------------------|
| JUL 1993 01... | 1250 | <0.1 | <0.010 | <0.1 | <0.010 | <0.010 | <0.010 | 0.03 | <0.010 | <0.010 |

| DATE | ENDRIN WATER UNFLTRD REC (UG/L) | ETHION, TOTAL (UG/L) | HEPTA- CHLOR, TOTAL (UG/L) | HEPTA- CHLOR EPOXIDE TOTAL (UG/L) | LINDANE TOTAL (UG/L) | MALA- THION, TOTAL (UG/L) | METH- OXY- CHLOR, TOTAL (UG/L) | METHYL PARA- THION, TOTAL (UG/L) | MIREX, TOTAL (UG/L) |
|-------------------|---|----------------------------|-------------------------------------|---|----------------------------|------------------------------------|--|--|---------------------------|
| JUL 1993 01... | <0.010 | <0.01 | <0.010 | <0.010 | <0.010 | <0.01 | <0.01 | <0.01 | <0.01 |

| DATE | PARA- THION, TOTAL (UG/L) | NAPH- THA- LENES, POLY- CHLOR. TOTAL (UG/L) | PER- THANE TOTAL (UG/L) | TOX- APHENE, TOTAL (UG/L) | TOTAL TRI- THION (UG/L) | 2,4-D, TOTAL (UG/L) | 2,4,5-T TOTAL (UG/L) | 2, 4-DP TOTAL (UG/L) | SILVEX, TOTAL (UG/L) |
|-------------------|------------------------------------|---|----------------------------------|------------------------------------|----------------------------------|---------------------------|----------------------------|----------------------------|----------------------------|
| JUL 1993 01... | <0.01 | <0.10 | <0.1 | <1 | <0.01 | <0.01 | <0.01 | <0.01 | <0.01 |

RIO YAUCO BASIN

50125780 LAGO LUCCHETTI AT DAMSITE, PR

LOCATION.--Lat 18°05'37", long 66°51'54", Hydrologic Unit 21010004, at Antonio Lucchetti Dam on Río Yauco, 3.9 mi (6.3 km) north of Yauco.

DRAINAGE AREA.--17.4 mi² (45.1 km²).

ELEVATION RECORDS

PERIOD OF RECORD.--December 1989 to current year.

GAGE.--Water-stage recorder. Datum of gage is mean sea level.

REMARKS.--Lago Lucchetti was completed in 1952. The dam is on Río Yauco and is a unit of the Southwestern Puerto Rico Project. It provides 16,500 acre-feet (20.3 hm³) of usable storage for power generation and irrigation. The dam is a concrete gravity structure with a total length of 591 ft (180 m), a maximum height of 178 ft (54 m), and a maximum width at the base of 150 ft (46 m). An ungated, overflow type spillway with a clear length of 171 ft (52 m) and a crest elevation of 570 ft (174 m), occupies the central portion of the dam. The spillway was designed for a maximum capacity of 62,800 ft³/s (1,778 m³/s) at a design head of 20 ft (6 m). The dam is owned by Puerto Rico Electric Power Authority. Gage-height and precipitation satellite telemetry at station.

EXTREMES OBSERVED FOR PERIOD OF RECORD.--Maximum elevation, 572.19 ft (174.40 m), May 27, 1993; minimum elevation, 519.85 ft (158.45 m), Oct. 23, 1991.

EXTREMES OBSERVED FOR CURRENT YEAR.--Maximum elevation, 572.19 ft (174.40 m), May 27; minimum elevation, 530.07 ft (161.56 m), Aug. 6.

Capacity Table
(based on data from Puerto Rico Water Resources Authority)

| Elevation, in feet | Contents, in acre-feet | Elevation, in feet | Contents, in acre-feet |
|--------------------|------------------------|--------------------|------------------------|
| 519 | 2,275 | 540 | 5,165 |
| 520 | 2,385 | 550 | 7,020 |
| 525 | 2,965 | 561 | 9,600 |
| 527 | 3,255 | 563 | 10,125 |
| 530 | 3,695 | 571 | 12,125 |
| 532 | 3,975 | 573 | 12,645 |

ELEVATION (FEET NGVD), WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993
DAILY OBSERVATION AT 24:00 VALUES

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|-------|--------|--------|----------|----------|----------|----------|----------|----------|----------|--------|--------|--------|
| 1 | A | A | 556.84 | 563.38 | 556.28 | 562.96 | 561.61 | 570.75 | 566.51 | 552.15 | A | 543.89 |
| 2 | A | A | 556.95 | 563.37 | 557.46 | 563.39 | 561.56 | 570.79 | 566.20 | 551.96 | A | 544.14 |
| 3 | A | A | 557.87 | 563.36 | 557.83 | 563.08 | 561.51 | 570.69 | 566.05 | 552.03 | A | 544.14 |
| 4 | A | A | 559.34 | 563.34 | 559.50 | 563.84 | 561.48 | 570.33 | 565.75 | 552.08 | 530.28 | 544.14 |
| 5 | A | 568.94 | 560.75 | 562.44 | 561.13 | 563.84 | 560.59 | 569.45 | 565.26 | 551.91 | 530.22 | 544.14 |
| 6 | 536.13 | 568.08 | 562.14 | 562.45 | 562.58 | 564.15 | 560.54 | 568.68 | 565.31 | 552.24 | 530.23 | 544.08 |
| 7 | 538.07 | 569.96 | 563.52 | 562.01 | 564.05 | 564.13 | 559.07 | 569.42 | 564.31 | 552.58 | 530.70 | 544.08 |
| 8 | 539.55 | 570.46 | 563.25 | 562.02 | 564.54 | 564.11 | 559.09 | 569.19 | 563.99 | 552.63 | A | 544.08 |
| 9 | 539.53 | 570.04 | 563.59 | 562.01 | 563.55 | 564.08 | 559.08 | 570.57 | 564.85 | 552.57 | A | 544.08 |
| 10 | 541.40 | 569.24 | 564.82 | 562.01 | 562.77 | 564.07 | 559.04 | 569.89 | 564.82 | 552.20 | A | 545.34 |
| 11 | 542.64 | 568.26 | 566.05 | 562.01 | 562.89 | 564.13 | 559.20 | 568.70 | 565.48 | 550.43 | 535.72 | 546.92 |
| 12 | 543.60 | 568.62 | 567.16 | 560.46 | 563.32 | 563.86 | 559.42 | 569.17 | 566.48 | 550.35 | 536.76 | 547.12 |
| 13 | 544.35 | 569.83 | 568.48 | 560.45 | 563.30 | 563.80 | 559.87 | 569.93 | 565.93 | 550.22 | A | 547.15 |
| 14 | 544.51 | 570.41 | 569.69 | 559.66 | 563.31 | 563.80 | 560.02 | 569.77 | 566.41 | 550.58 | A | 547.43 |
| 15 | 544.71 | 570.90 | 569.93 | 559.64 | 565.01 | 563.09 | 560.72 | 569.82 | 566.35 | 549.91 | 538.45 | 547.50 |
| 16 | 546.23 | 570.25 | 570.16 | 558.04 | 565.15 | 563.31 | 561.94 | 569.43 | 566.25 | 547.87 | A | A |
| 17 | 547.14 | 570.32 | 570.27 | 557.66 | 564.32 | 563.27 | 562.20 | 570.58 | 565.41 | 545.81 | 539.30 | A |
| 18 | A | 571.08 | 570.19 | 556.71 | 563.67 | 563.24 | 562.45 | 570.29 | 565.27 | 543.89 | A | A |
| 19 | A | 570.13 | 570.19 | 556.23 | 563.07 | 563.21 | 562.21 | 570.28 | 565.25 | 543.85 | A | A |
| 20 | A | 570.21 | 569.94 | 555.37 | 563.41 | 563.17 | 562.60 | 570.00 | 562.91 | 544.55 | 540.87 | A |
| 21 | A | 570.35 | 568.84 | 555.09 | 563.44 | 563.13 | 562.06 | 569.00 | 561.51 | 543.38 | 541.37 | A |
| 22 | A | 570.44 | 568.30 | 555.09 | 563.50 | 563.10 | 562.61 | 569.29 | 560.03 | 541.97 | 542.41 | 551.73 |
| 23 | A | 569.88 | 566.91 | 555.07 | 563.45 | 563.07 | 563.25 | 569.85 | 557.90 | 539.72 | 542.68 | 553.82 |
| 24 | A | 568.54 | 565.30 | 555.04 | 563.49 | 563.05 | 563.76 | 569.71 | 555.54 | 537.61 | 542.68 | 554.21 |
| 25 | A | 566.02 | 565.33 | 554.99 | 563.44 | 563.03 | 563.75 | 569.39 | 553.54 | 534.26 | 542.68 | 555.93 |
| 26 | A | 563.70 | 564.16 | 554.08 | 563.19 | 562.99 | 563.73 | 570.19 | 552.28 | A | 542.73 | 558.20 |
| 27 | A | 560.98 | 564.22 | 553.80 | 563.07 | 563.06 | 564.60 | 571.18 | 552.23 | A | 543.10 | 564.04 |
| 28 | A | 558.17 | 563.21 | 553.85 | 563.02 | 563.08 | 565.16 | 569.95 | 552.38 | A | 543.28 | 566.09 |
| 29 | A | 557.35 | 563.25 | 555.78 | --- | 562.08 | 565.52 | 568.87 | 552.54 | A | 543.42 | 567.25 |
| 30 | A | 556.24 | 563.26 | 555.75 | --- | 562.05 | 569.15 | 567.69 | 552.63 | A | 543.70 | 567.10 |
| 31 | A | --- | 563.38 | 556.23 | --- | 562.02 | --- | 566.81 | --- | A | 543.80 | --- |
| TOTAL | --- | --- | 17517.29 | 17317.39 | 15753.74 | 17463.19 | 16857.79 | 17659.66 | 16859.37 | --- | --- | --- |
| MEAN | --- | --- | 565.07 | 558.63 | 562.63 | 563.33 | 561.93 | 569.67 | 561.98 | --- | --- | --- |
| MAX | --- | --- | 570.27 | 563.38 | 565.15 | 564.15 | 569.15 | 571.18 | 566.51 | --- | --- | --- |
| MIN | --- | --- | 556.84 | 553.80 | 556.28 | 562.02 | 559.04 | 566.81 | 552.23 | --- | --- | --- |

A No gage-height record.

RIO LOCO BASIN

50129700 RIO LOCO AT GUANICA, PR

WATER-QUALITY RECORDS

LOCATION.--Lat 17°58'33", long 66°54'52", 0.6 mi (1.0 km) northwest of Guánica and 1.2 mi (1.9 km) northeast of Ensenada.

DRAINAGE AREA.--Indeterminate.

PERIOD OF RECORD.--Water years 1975 to current year.

WATER-QUALITY DATA, WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993

| DATE | TIME | DIS- CHARGE, INST. CUBIC FEET PER SECOND | SPE- CIFIC CON- DUCT- ANCE (US/CM) | PH WATER WHOLE FIELD (STAND- ARD UNITS) | TEMPER- ATURE WATER (DEG C) | TUR- BID- ITY (NTU) | OXYGEN, DIS- SOLVED (MG/L) | OXYGEN, DIS- SOLVED (PER- CENT SATUR- ATION) | OXYGEN DEMAND, CHEM- ICAL (HIGH LEVEL) (MG/L) | COLI- FORM, FECAL, 0.45 UM-MF (COLS./ 100 ML) | STREP- TOCOCCI FECAL, (COLS. PER 100 ML) |
|----------|------|--|---|---|--------------------------------------|------------------------------|-------------------------------------|--|---|---|---|
| OCT 1992 | | | | | | | | | | | |
| 28... | 1130 | -- | 446 | 7.4 | 26.5 | 8.3 | 3.0 | 43 | <10 | 520 | 850 |
| DEC | | | | | | | | | | | |
| 10... | 1145 | -- | 600 | 7.9 | 24.8 | 23 | 4.5 | 54 | <10 | 490 | 360 |
| FEB 1993 | | | | | | | | | | | |
| 17... | 1145 | -- | 510 | 7.9 | 24.0 | 4.9 | 4.9 | 59 | <10 | 1000 | 490 |
| APR | | | | | | | | | | | |
| 19... | 1330 | -- | 564 | 7.4 | 28.0 | 50 | 2.9 | 37 | 29 | 510 | 430 |
| JUN | | | | | | | | | | | |
| 02... | 1330 | -- | 506 | 7.9 | 29.0 | 12 | 1.0 | 21 | 42 | 4800 | 6700 |
| AUG | | | | | | | | | | | |
| 18... | 1315 | -- | 12400 | 7.1 | 29.0 | 18 | 2.0 | 27 | 34 | 2800 | 2400 |

| DATE | HARD- NESS TOTAL (MG/L AS CACO3) | HARD- NESS NONCARB WH WAT TOT FLD MG/L AS CACO3 | CALCIUM DIS- SOLVED (MG/L AS CA) | MAGNE- SIUM, DIS- SOLVED (MG/L AS MG) | SODIUM, DIS- SOLVED (MG/L AS NA) | SODIUM AD- SORP- TION RATIO | POTAS- SIUM, DIS- SOLVED (MG/L AS K) | ALKA- LITY WAT WH TOT FET MG/L AS CACO3 | SULFIDE TOTAL (MG/L AS S) | SULFATE DIS- SOLVED (MG/L AS SO4) | CHLO- RIDE, DIS- SOLVED (MG/L AS CL) |
|----------|---|---|--|--|--|---|---|--|------------------------------------|---|---|
| OCT 1992 | | | | | | | | | | | |
| 28... | 970 | 3 | 22 | 18 | 14 | 2 | 3.5 | 170 | <0.5 | 42 | 60 |
| DEC | | | | | | | | | | | |
| 10... | -- | -- | -- | -- | -- | -- | -- | 180 | -- | -- | -- |
| FEB 1993 | | | | | | | | | | | |
| 17... | -- | -- | -- | -- | -- | -- | -- | 170 | -- | -- | -- |
| APR | | | | | | | | | | | |
| 19... | 140 | 0 | 29 | 16 | 36 | 1 | 3.8 | 140 | <0.5 | 23 | 58 |
| JUN | | | | | | | | | | | |
| 02... | -- | -- | -- | -- | -- | -- | -- | 180 | -- | -- | -- |
| AUG | | | | | | | | | | | |
| 18... | 170 | 2 | 28 | 25 | 13 | 0.4 | 3.8 | 150 | -- | 27 | 19 |

| DATE | FLUO- RIDE, DIS- SOLVED (MG/L AS F) | SILICA, DIS- SOLVED (MG/L AS SiO2) | SOLIDS, SUM OF CONSTI- TUENTS, DIS- SOLVED (MG/L) | SOLIDS, DIS- SOLVED (TONS PER DAY) | RESIDUE TOTAL AT 105 DEG. C, SUS- PENDEd (MG/L) | NITRO- GEN, NITRATE TOTAL (MG/L AS N) | NITRO- GEN, NITRITE TOTAL (MG/L AS N) | NITRO- GEN, NO2+NO3 TOTAL (MG/L AS N) | NITRO- GEN, AMMONIA TOTAL (MG/L AS N) | NITRO- GEN, ORGANIC TOTAL (MG/L AS N) |
|----------|--|---|---|---|---|--|--|--|--|--|
| OCT 1992 | | | | | | | | | | |
| 28... | 1.1 | 28 | 492 | -- | 30 | 0.500 | 0.030 | 0.530 | 0.060 | 0.44 |
| DEC | | | | | | | | | | |
| 10... | -- | -- | -- | -- | 12 | -- | <0.010 | 0.057 | 0.030 | 0.27 |
| FEB 1993 | | | | | | | | | | |
| 17... | -- | -- | -- | -- | 7 | -- | <0.010 | 0.082 | 0.090 | 0.31 |
| APR | | | | | | | | | | |
| 19... | 0.10 | 23 | 273 | -- | 82 | 0.076 | 0.010 | 0.086 | 0.040 | 0.26 |
| JUN | | | | | | | | | | |
| 02... | -- | -- | -- | -- | 58 | 0.087 | 0.010 | 0.097 | 0.060 | 0.84 |
| AUG | | | | | | | | | | |
| 18... | 0.20 | 28 | 234 | -- | 40 | -- | <0.010 | 0.098 | 0.050 | 0.25 |

RIO LOCO BASIN

50129700 RIO LOCO AT GUANICA, PR--Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993

| DATE | NITRO- GEN, AM- MONIA + ORGANIC TOTAL (MG/L AS N) | NITRO- GEN, TOTAL (MG/L AS N) | NITRO- GEN, TOTAL (MG/L AS NO3) | PHOS- PHORUS TOTAL (MG/L AS P) | ARSENIC TOTAL (UG/L AS AS) | BARIUM, TOTAL RECOV- ERABLE (UG/L AS BA) | BORON, TOTAL RECOV- ERABLE (UG/L AS B) | CADMIUM TOTAL RECOV- ERABLE (UG/L AS CD) | CHRO- MIUM, TOTAL RECOV- ERABLE (UG/L AS CR) | COPPER, TOTAL RECOV- ERABLE (UG/L AS CU) |
|-------------------|---|---|---|--|-------------------------------------|---|---|---|--|---|
| OCT 1992 28... | 0.50 | 1.0 | 4.6 | 0.270 | <1 | <100 | 40 | <1 | 6 | <10 |
| DEC 10... | 0.30 | 0.36 | 1.6 | 0.060 | -- | -- | -- | -- | -- | -- |
| FEB 1993 17... | 0.40 | 0.48 | 2.1 | 0.150 | -- | -- | -- | -- | -- | -- |
| APR 19... | 0.30 | 0.39 | 1.7 | 0.030 | <1 | <100 | 70 | <1 | 7 | 10 |
| JUN 02... | 0.90 | 1.0 | 4.4 | 0.270 | -- | -- | -- | -- | -- | -- |
| AUG 18... | 0.30 | 0.40 | 1.8 | 0.100 | -- | -- | -- | -- | -- | -- |

| DATE | IRON, TOTAL RECOV- ERABLE (UG/L AS FE) | LEAD, TOTAL RECOV- ERABLE (UG/L AS PB) | MANGA- NESE, TOTAL RECOV- ERABLE (UG/L AS MN) | MERCURY TOTAL RECOV- ERABLE (UG/L AS HG) | SELE- NIUM, TOTAL (UG/L AS SE) | SILVER, TOTAL RECOV- ERABLE (UG/L AS AG) | ZINC, TOTAL RECOV- ERABLE (UG/L AS ZN) | CYANIDE TOTAL (MG/L AS CN) | PHENOLS TOTAL (UG/L) | METHY- LENE BLUE ACTIVE SUB- STANCE (MG/L) |
|-------------------|---|---|---|---|--|---|---|-------------------------------------|----------------------------|--|
| OCT 1992 28... | 860 | <1 | 140 | <0.10 | <1 | <1 | <10 | <0.010 | <1 | 0.32 |
| DEC 10... | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| FEB 1993 17... | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| APR 19... | 930 | 1 | 100 | <0.10 | <1 | <1 | <10 | <0.010 | 1 | 0.03 |
| JUN 02... | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| AUG 18... | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |

PESTICIDE ANALYSES

| DATE | TIME | PCB, TOTAL (UG/L) | ALDRIN, TOTAL (UG/L) | CHLOR- DANE, TOTAL (UG/L) | DDD, TOTAL (UG/L) | DDE, TOTAL (UG/L) | DDT, TOTAL (UG/L) | DI- AZINON, TOTAL (UG/L) | DI- ELDRIN, TOTAL (UG/L) | ENDO- SULFAN, TOTAL (UG/L) |
|-------------------|------|-------------------------|----------------------------|------------------------------------|-------------------------|-------------------------|-------------------------|-----------------------------------|-----------------------------------|-------------------------------------|
| JUN 1993 26... | 0845 | <0.1 | <0.010 | <0.1 | <0.010 | <0.010 | <0.010 | <0.01 | <0.010 | <0.010 |

| DATE | ENDRIN WATER UNFLTRD REC (UG/L) | ETHION, TOTAL (UG/L) | HEPTA- CHLOR, TOTAL (UG/L) | HEPTA- CHLOR EPOXIDE TOTAL (UG/L) | LINDANE TOTAL (UG/L) | MALA- THION, TOTAL (UG/L) | METH- OXY- CHLOR, TOTAL (UG/L) | METHYL PARA- THION, TOTAL (UG/L) | MIREX, TOTAL (UG/L) |
|-------------------|---|----------------------------|-------------------------------------|---|----------------------------|------------------------------------|--|--|---------------------------|
| JUN 1993 26... | <0.010 | <0.01 | <0.010 | <0.010 | <0.010 | <0.01 | <0.01 | <0.01 | <0.01 |

| DATE | PARA- THION, TOTAL (UG/L) | NAPH- THA- LENES, POLY- CHLOR. TOTAL (UG/L) | PER- THANE TOTAL (UG/L) | TOX- APHENE, TOTAL (UG/L) | TOTAL TRI- THION (UG/L) | 2,4-D, TOTAL (UG/L) | 2,4,5-T TOTAL (UG/L) | 2, 4-DP TOTAL (UG/L) | SILVEX, TOTAL (UG/L) |
|-------------------|------------------------------------|---|----------------------------------|------------------------------------|----------------------------------|---------------------------|----------------------------|----------------------------|----------------------------|
| JUN 1993 26... | <0.01 | <0.10 | <0.1 | <1 | <0.01 | 0.11 | <0.01 | <0.01 | <0.01 |

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RIO GUANAJIBO BASIN

50131990 RIO GUANAJIBO AT HWY 119 AT SAN GERMAN, PR

LOCATION.--Lat 18°05'06", long 67°02'02", Hydrologic Unit 21010003, on right bank, at bridge on Hwy 119, 0.6 mi (1.0 km) southwest of junction of Highways 119 and 2, 0.2 mi (0.3 km) northeast of junction of Highways 119 and 102, 0.7 mi (1.1 km) east from public Plaza of San Germán.

DRAINAGE AREA.--34.6 mi² (89.6 km²).

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--April 1991 to current year.

GAGE.--Water-stage recorder. Elevation of gage is 148 ft (45 m), from topographic map.

REMARKS.--Records poor. Gage-height and precipitation satellite telemetry at station.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993
DAILY MEAN VALUES

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|-------|-------|------|------|------|------|-------|-------|------|------|------|------|------|
| 1 | 58 | 129 | 96 | 32 | 53 | 17 | 7.7 | e70 | e80 | e43 | e14 | e15 |
| 2 | 55 | 139 | 77 | 31 | 47 | 16 | 8.1 | e140 | e56 | e36 | e13 | e15 |
| 3 | 50 | 159 | 65 | 31 | 38 | 14 | 8.2 | e120 | e45 | e33 | e13 | e19 |
| 4 | 44 | 99 | 60 | 30 | 32 | 11 | 8.9 | e98 | e35 | e30 | e18 | e30 |
| 5 | 92 | 83 | 59 | 28 | 28 | 10 | 7.8 | e96 | e32 | e30 | e21 | e27 |
| 6 | 96 | 78 | 58 | 28 | 23 | 10 | 7.0 | e110 | e29 | e33 | e25 | e23 |
| 7 | 272 | 73 | 54 | 33 | 23 | 10 | 7.0 | e45 | e28 | e48 | e19 | e16 |
| 8 | 236 | 68 | 52 | 31 | 21 | 11 | 8.0 | e35 | e40 | e41 | e40 | e15 |
| 9 | 142 | 68 | 50 | 27 | 21 | 10 | 8.3 | e68 | e96 | e28 | e30 | e45 |
| 10 | 431 | 61 | 47 | 25 | 17 | 8.3 | e8.6 | e56 | e90 | e23 | e22 | e90 |
| 11 | 460 | 143 | 41 | 25 | 13 | 11 | e15 | e31 | e45 | e21 | e17 | e60 |
| 12 | 241 | 93 | 38 | 25 | 12 | 12 | e45 | e25 | e60 | e21 | e16 | e35 |
| 13 | 165 | 180 | 80 | 25 | 15 | 13 | e40 | e23 | e54 | e21 | e14 | e34 |
| 14 | 212 | 156 | 111 | 24 | 16 | 13 | e35 | e22 | e34 | e25 | e17 | e25 |
| 15 | 193 | 252 | 75 | 23 | 24 | 15 | e54 | e21 | e31 | e20 | e21 | e22 |
| 16 | 206 | 227 | 54 | 22 | 61 | 15 | e70 | e20 | e35 | e18 | e30 | e19 |
| 17 | 356 | 194 | 46 | 21 | 52 | 13 | e25 | e19 | e24 | e18 | e20 | e20 |
| 18 | 231 | 178 | 40 | 20 | 35 | 11 | e17 | e18 | e30 | e19 | e18 | e25 |
| 19 | 207 | 130 | 39 | 19 | 30 | 10 | e18 | e17 | e72 | e17 | e16 | e58 |
| 20 | 152 | 187 | 36 | 19 | 25 | 9.8 | e14 | e22 | e56 | e16 | e15 | e40 |
| 21 | 125 | 147 | 34 | 19 | 21 | 9.2 | e13 | e20 | e41 | e16 | e14 | e31 |
| 22 | 159 | 125 | 33 | 25 | 19 | 8.6 | e15 | e19 | e35 | e15 | e35 | e29 |
| 23 | 444 | 112 | 32 | 24 | 17 | 9.8 | e11 | e50 | e33 | e16 | e80 | e127 |
| 24 | 439 | 89 | 31 | 20 | 18 | 9.9 | e22 | e70 | e31 | e15 | e25 | e55 |
| 25 | 284 | 78 | 31 | 18 | 24 | 9.7 | e23 | e50 | e31 | e15 | e20 | e35 |
| 26 | 216 | 72 | 73 | 17 | 18 | 8.9 | e14 | e60 | e29 | e17 | e17 | e46 |
| 27 | 181 | 104 | 52 | 16 | 16 | 12 | e12 | e120 | e28 | e18 | e21 | e173 |
| 28 | 154 | 85 | 42 | 18 | 14 | 19 | e25 | e130 | e55 | e16 | e24 | e101 |
| 29 | 174 | 78 | 40 | 145 | --- | 12 | e27 | e80 | e66 | e15 | e27 | e64 |
| 30 | 136 | 78 | 36 | 64 | --- | 8.9 | e23 | e200 | e69 | e14 | e28 | e57 |
| 31 | 137 | --- | 35 | 55 | --- | 8.3 | --- | e300 | --- | e14 | e18 | --- |
| TOTAL | 6348 | 3665 | 1617 | 940 | 733 | 356.4 | 597.6 | 2155 | 1390 | 712 | 708 | 1351 |
| MEAN | 205 | 122 | 52.2 | 30.3 | 26.2 | 11.5 | 19.9 | 69.5 | 46.3 | 23.0 | 22.8 | 45.0 |
| MAX | 460 | 252 | 111 | 145 | 61 | 19 | 70 | 300 | 96 | 48 | 80 | 173 |
| MIN | 44 | 61 | 31 | 16 | 12 | 8.3 | 7.0 | 17 | 24 | 14 | 13 | 15 |
| MED | 181 | 108 | 47 | 25 | 22 | 11 | 14 | 50 | 37 | 19 | 20 | 32 |
| AC-FT | 12590 | 7270 | 3210 | 1860 | 1450 | 707 | 1190 | 4270 | 2760 | 1410 | 1400 | 2680 |
| CFSM | 5.92 | 3.53 | 1.51 | .88 | .76 | .33 | .58 | 2.01 | 1.34 | .66 | .66 | 1.30 |
| IN. | 6.83 | 3.94 | 1.74 | 1.01 | .79 | .38 | .64 | 2.32 | 1.49 | .77 | .76 | 1.45 |

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1991 - 1993, BY WATER YEAR (WY)

| | 1991 | 1992 | 1993 | 1991 | 1992 | 1993 | 1991 | 1992 | 1993 | 1991 | 1992 | 1993 |
|------|------|------|------|------|------|------|------|------|------|------|------|------|
| MEAN | 113 | 69.0 | 30.2 | 33.8 | 15.1 | 7.51 | 15.8 | 49.3 | 21.0 | 17.2 | 22.2 | 37.2 |
| MAX | 205 | 122 | 52.2 | 37.3 | 26.2 | 11.5 | 19.9 | 69.5 | 46.3 | 23.0 | 22.8 | 53.7 |
| (WY) | 1993 | 1993 | 1993 | 1992 | 1993 | 1993 | 1993 | 1993 | 1993 | 1993 | 1993 | 1992 |
| MIN | 20.4 | 15.8 | 8.21 | 30.3 | 4.32 | 3.52 | 11.7 | 32.8 | 5.01 | 14.0 | 21.7 | 12.9 |
| (WY) | 1992 | 1992 | 1992 | 1993 | 1992 | 1992 | 1992 | 1991 | 1991 | 1992 | 1991 | 1991 |

| SUMMARY STATISTICS | FOR 1992 CALENDAR YEAR | FOR 1993 WATER YEAR | WATER YEARS 1991 - 1993 |
|--------------------------|------------------------|---------------------|-------------------------|
| ANNUAL TOTAL | 17868.5 | 20573.0 | |
| ANNUAL MEAN | 48.8 | 56.4 | 38.5 |
| HIGHEST ANNUAL MEAN | | | 56.4 |
| LOWEST ANNUAL MEAN | | | 20.8 |
| HIGHEST DAILY MEAN | 817 | 460 | 817 |
| LOWEST DAILY MEAN | 1.5 | 7.0 | 1.5 |
| ANNUAL SEVEN-DAY MINIMUM | 1.8 | 7.8 | 1.8 |
| INSTANTANEOUS PEAK FLOW | | 3120 | 6610 |
| INSTANTANEOUS PEAK STAGE | | 10.41 | 13.23 |
| ANNUAL RUNOFF (AC-FT) | 35440 | 40810 | 27920 |
| ANNUAL RUNOFF (CFSM) | 1.41 | 1.63 | 1.11 |
| ANNUAL RUNOFF (INCHES) | 19.21 | 22.12 | 15.13 |
| 10 PERCENT EXCEEDS | 142 | 141 | 78 |
| 50 PERCENT EXCEEDS | 13 | 30 | 16 |
| 90 PERCENT EXCEEDS | 2.8 | 13 | 4.3 |

e Estimated

RIO GUANAJIBO BASIN

50133600 RIO GUANAJIBO NEAR SAN GERMAN, PR

WATER-QUALITY RECORDS

LOCATION.--Lat 18°07'18", long 67°03'56", at bridge on Highway 347, 2.2 mi (3.5 km) northwest of San Germán.

DRAINAGE AREA.--45.5 mi² (117.8 km²).

PERIOD OF RECORD.--Water years 1979 to current year.

WATER QUALITY DATA, WATER YEARS OCTOBER 1992 TO SEPTEMBER 1993

| DATE | TIME | DIS-CHARGE, INST. CUBIC FEET PER SECOND | SPECIFIC CONDUCTANCE (US/CM) | PH WATER WHOLE FIELD (STANDARD UNITS) | TEMPERATURE WATER (DEG C) | TURBIDITY (NTU) | OXYGEN, DIS-SOLVED (MG/L) | OXYGEN, DIS-SOLVED (PER-CENT SATURATION) | OXYGEN DEMAND, CHEMICAL (HIGH LEVEL) (MG/L) | COLIFORM, FECAL, 0.45 UM-MF (COLS./100 ML) | STREPTOCOCCI, FECAL, (COLS. PER 100 ML) |
|-----------|------|---|------------------------------|---------------------------------------|---------------------------|-----------------|---------------------------|--|---|--|---|
| OCT 1992 | | | | | | | | | | | |
| 22... | 1245 | 89 | 480 | 7.2 | 26.0 | 24 | 3.0 | 36 | <10 | 350 | 210 |
| DEC 29... | 1225 | 64 | 520 | 8.0 | 22.9 | 12 | 7.0 | 80 | <10 | K1400 | 240 |
| FEB 1993 | | | | | | | | | | | |
| 19... | 1000 | 42 | 459 | 7.9 | 24.2 | 18 | 9.1 | 110 | 14 | 560 | 210 |
| APR 21... | 1435 | 100 | 552 | 7.2 | 29.0 | 17 | 3.7 | 48 | 17 | 380 | 430 |
| JUN 03... | 1415 | 56 | 522 | 7.8 | 31.7 | 2.1 | 7.8 | 100 | <10 | 560 | 480 |
| SEP 08... | 1040 | 49 | 534 | 7.3 | 27.6 | 0.60 | 6.5 | 81 | <10 | 2500 | 260 |

| DATE | HARDNESS TOTAL (MG/L AS CaCO3) | HARDNESS NONCARB WH WAT TOT FLD (MG/L AS CaCO3) | CALCIUM DIS-SOLVED (MG/L AS Ca) | MAGNESIUM, DIS-SOLVED (MG/L AS Mg) | SODIUM, DIS-SOLVED (MG/L AS Na) | SODIUM ADSORPTION RATIO | POTASSIUM, DIS-SOLVED (MG/L AS K) | ALKALINITY WAT WH TOT FET FIELD (MG/L AS CaCO3) | SULFIDE TOTAL (MG/L AS S) | SULFATE DIS-SOLVED (MG/L AS SO4) | CHLORIDE, DIS-SOLVED (MG/L AS Cl) |
|-----------|--------------------------------|---|---------------------------------|------------------------------------|---------------------------------|-------------------------|-----------------------------------|---|---------------------------|----------------------------------|-----------------------------------|
| OCT 1992 | | | | | | | | | | | |
| 22... | 220 | 12 | 25 | 39 | 10 | 0.3 | 1.5 | 230 | <0.5 | 18 | 14 |
| DEC 29... | -- | -- | -- | -- | -- | -- | -- | 240 | -- | -- | -- |
| FEB 1993 | | | | | | | | | | | |
| 19... | -- | -- | -- | -- | -- | -- | -- | 180 | -- | -- | -- |
| APR 21... | 220 | 0 | 25 | 38 | 19 | 0.6 | 3.0 | 210 | <0.5 | 28 | 27 |
| JUN 03... | -- | -- | -- | -- | -- | -- | -- | 160 | -- | -- | -- |
| SEP 08... | 230 | 6 | 26 | 41 | 23 | 0.7 | 2.7 | 170 | -- | 27 | 24 |

| DATE | FLUORIDE, DIS-SOLVED (MG/L AS F) | SILICA, DIS-SOLVED (MG/L AS SiO2) | SOLIDS, SUM OF CONSTITUENTS, DIS-SOLVED (MG/L) | SOLIDS, DIS-SOLVED (TONS PER DAY) | RESIDUE TOTAL AT 105 DEG. C, SUSPENDED (MG/L) | NITROGEN, NITRATE TOTAL (MG/L AS N) | NITROGEN, NITRITE TOTAL (MG/L AS N) | NITROGEN, NO2+NO3 TOTAL (MG/L AS N) | NITROGEN, AMMONIA TOTAL (MG/L AS N) | NITROGEN, ORGANIC TOTAL (MG/L AS N) |
|-----------|----------------------------------|-----------------------------------|--|-----------------------------------|---|-------------------------------------|-------------------------------------|-------------------------------------|-------------------------------------|-------------------------------------|
| OCT 1992 | | | | | | | | | | |
| 22... | <0.10 | 37 | 282 | 67.8 | <1 | 0.870 | 0.030 | 0.900 | 0.070 | 0.33 |
| DEC 29... | -- | -- | -- | -- | 12 | 0.500 | 0.100 | 0.600 | 2.40 | 0.80 |
| FEB 1993 | | | | | | | | | | |
| 19... | -- | -- | -- | -- | 16 | 0.650 | 0.050 | 0.700 | 0.140 | 0.36 |
| APR 21... | 0.10 | 32 | 299 | 80.8 | <1 | 0.510 | 0.090 | 0.600 | 0.390 | 0.51 |
| JUN 03... | -- | -- | -- | -- | 21 | 0.400 | 0.100 | 0.500 | 1.20 | 0.40 |
| SEP 08... | 0.10 | 34 | 311 | 41.1 | 5 | 0.630 | 0.070 | 0.700 | 0.570 | 0.43 |

K = non-ideal count

RIO GUANAJIBO BASIN

50133600 RIO GUANAJIBO NEAR SAN GERMAN, PR--Continued

WATER QUALITY DATA, WATER YEARS OCTOBER 1992 TO SEPTEMBER 1993

| DATE | NITRO- GEN, AM- MONIA + ORGANIC TOTAL (MG/L AS N) | NITRO- GEN, TOTAL (MG/L AS N) | NITRO- GEN, TOTAL (MG/L AS NO3) | PHOS- PHORUS TOTAL (MG/L AS P) | ARSENIC TOTAL (UG/L AS AS) | BARIUM, TOTAL RECOV- ERABLE (UG/L AS BA) | BORON, TOTAL RECOV- ERABLE (UG/L AS B) | CADMIUM TOTAL RECOV- ERABLE (UG/L AS CD) | CHRO- MIUM, TOTAL RECOV- ERABLE (UG/L AS CR) | COPPER, TOTAL RECOV- ERABLE (UG/L AS CU) |
|----------|---|---|---|--|-------------------------------------|---|---|---|--|---|
| OCT 1992 | | | | | | | | | | |
| 22... | 0.40 | 1.3 | 5.8 | 0.200 | <1 | <100 | 40 | <1 | <1 | 10 |
| DEC | | | | | | | | | | |
| 29... | 3.2 | 3.8 | 17 | 1.80 | -- | -- | -- | -- | -- | -- |
| FEB 1993 | | | | | | | | | | |
| 19... | 0.50 | 1.5 | 6.6 | 0.400 | -- | -- | -- | -- | -- | -- |
| APR | | | | | | | | | | |
| 21... | 0.90 | 2.1 | 9.3 | 0.560 | <1 | <100 | 20 | <1 | 10 | 10 |
| JUN | | | | | | | | | | |
| 03... | 1.6 | 1.7 | 7.5 | 0.250 | -- | -- | -- | -- | -- | -- |
| SEP | | | | | | | | | | |
| 08... | 1.0 | 0.50 | 12 | 0.350 | -- | -- | -- | -- | -- | -- |

[illegible]

RIO GUANAJIBO BASIN

391

50136400 RIO ROSARIO NEAR HORMIGUEROS, PR

LOCATION.--Lat 18°09'36", long 67°05'08", Hydrologic Unit 21010003 at bridge on Highway 348, 0.5 mi (0.8 km) southwest of Rosario plaza.

DRAINAGE AREA.--18.3 mi² (47.4 km²).

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--October 1985 to current year.

GAGE.--Water-stage recorder. Elevation of gage is 50.0 ft (15.2 m), from topographic map.

REMARKS.--Records fair. Gage-height and precipitation satellite telemetry at station.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993
DAILY MEAN VALUES

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|-------|------|------|------|------|------|------|------|------|------|------|------|------|
| 1 | 373 | 131 | 42 | 16 | 96 | 18 | 15 | 201 | 113 | 70 | 41 | 57 |
| 2 | 196 | 98 | 37 | 16 | 44 | 18 | 14 | 271 | 83 | 54 | 40 | 78 |
| 3 | 132 | 80 | 36 | 16 | 33 | 16 | 15 | 225 | 69 | 48 | 41 | 131 |
| 4 | 102 | 76 | 34 | 16 | 28 | 16 | 13 | 140 | 60 | 44 | 45 | 239 |
| 5 | 90 | 67 | 51 | 18 | 26 | 16 | 14 | 257 | 55 | 63 | 51 | 145 |
| 6 | 117 | 64 | 38 | 19 | 24 | 16 | 13 | 150 | 54 | 86 | 39 | 101 |
| 7 | 116 | 59 | 30 | 18 | 23 | 16 | 13 | 75 | 53 | 257 | 40 | 110 |
| 8 | 147 | 55 | 29 | 17 | 22 | 18 | 13 | 52 | 87 | 115 | 42 | 132 |
| 9 | 116 | 51 | 26 | 17 | 22 | 23 | 16 | 117 | 149 | 63 | 49 | 508 |
| 10 | 385 | 49 | 25 | 17 | 22 | 16 | 12 | 83 | 133 | 50 | 42 | 195 |
| 11 | 204 | 47 | 24 | 18 | 22 | 16 | 79 | 58 | 82 | 46 | 39 | 158 |
| 12 | 140 | 63 | 23 | 18 | 22 | 15 | 167 | 51 | 123 | 45 | 38 | 179 |
| 13 | 104 | 80 | 31 | 18 | 23 | 15 | 112 | 49 | 97 | 43 | 37 | 163 |
| 14 | 78 | 229 | 69 | 18 | 22 | 15 | 54 | 47 | 72 | 46 | 37 | 133 |
| 15 | 67 | 209 | 42 | 19 | 20 | 14 | 28 | 42 | 65 | 42 | 36 | 109 |
| 16 | 139 | 133 | 25 | 19 | 104 | 14 | 19 | 43 | 69 | 39 | 82 | 94 |
| 17 | 325 | 89 | 22 | 19 | 73 | 14 | 16 | 45 | 59 | 38 | 46 | 128 |
| 18 | 199 | 140 | 20 | 21 | 31 | 14 | 25 | 44 | 58 | 37 | 37 | 168 |
| 19 | 135 | 119 | 19 | 20 | 25 | 13 | 18 | 43 | 82 | 37 | 34 | 176 |
| 20 | 104 | 120 | 18 | 20 | 22 | 13 | 12 | 50 | 84 | 37 | 32 | 154 |
| 21 | 79 | 95 | 17 | 20 | 20 | 13 | 17 | 46 | 66 | 36 | 34 | 132 |
| 22 | 93 | 107 | 17 | 20 | 19 | 13 | 15 | 43 | 62 | 44 | 140 | 118 |
| 23 | 183 | 95 | 16 | 19 | 18 | 14 | 11 | 116 | 58 | 45 | 64 | 112 |
| 24 | 208 | 68 | 20 | 18 | 18 | 16 | 52 | 65 | 52 | 42 | 31 | 104 |
| 25 | 157 | 56 | 16 | 18 | 18 | 15 | 22 | 52 | 58 | 43 | 39 | 95 |
| 26 | 113 | 49 | 17 | 18 | 17 | 18 | 13 | 175 | 71 | 49 | 39 | 127 |
| 27 | 83 | 46 | 16 | 17 | 16 | 30 | 12 | 270 | 74 | 47 | 54 | 223 |
| 28 | 67 | 52 | 16 | 18 | 17 | 20 | 32 | 166 | 176 | 40 | 110 | 305 |
| 29 | 113 | 76 | 16 | 162 | --- | 15 | 21 | 113 | 328 | 40 | 125 | 188 |
| 30 | 157 | 53 | 19 | 40 | --- | 15 | 19 | 525 | 142 | 40 | 117 | 148 |
| 31 | 158 | --- | 16 | 46 | --- | 17 | --- | 182 | --- | 40 | 68 | --- |
| TOTAL | 4680 | 2656 | 827 | 756 | 847 | 502 | 882 | 3796 | 2734 | 1726 | 1669 | 4710 |
| MEAN | 151 | 88.5 | 26.7 | 24.4 | 30.2 | 16.2 | 29.4 | 122 | 91.1 | 55.7 | 53.8 | 157 |
| MAX | 385 | 229 | 69 | 162 | 104 | 30 | 167 | 525 | 328 | 257 | 140 | 508 |
| MIN | 67 | 46 | 16 | 16 | 16 | 13 | 11 | 42 | 52 | 36 | 31 | 57 |
| AC-FT | 9280 | 5270 | 1640 | 1500 | 1680 | 996 | 1750 | 7530 | 5420 | 3420 | 3310 | 9340 |
| CFSM | 8.25 | 4.84 | 1.46 | 1.33 | 1.65 | .88 | 1.61 | 6.69 | 4.98 | 3.04 | 2.94 | 8.58 |
| IN. | 9.51 | 5.40 | 1.68 | 1.54 | 1.72 | 1.02 | 1.79 | 7.72 | 5.56 | 3.51 | 3.39 | 9.57 |

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1986 - 1993, BY WATER YEAR (WY)

| | 1986 | 1987 | 1988 | 1989 | 1990 | 1991 | 1992 | 1993 | 1994 | 1995 | 1996 | 1997 |
|------|------|------|------|------|------|------|------|------|------|------|------|------|
| MEAN | 111 | 76.0 | 30.1 | 21.0 | 17.1 | 21.5 | 24.2 | 50.7 | 50.2 | 45.3 | 60.2 | 102 |
| MAX | 206 | 117 | 43.2 | 31.8 | 30.2 | 77.0 | 57.7 | 122 | 91.1 | 75.2 | 102 | 157 |
| (WY) | 1986 | 1990 | 1990 | 1990 | 1993 | 1989 | 1989 | 1993 | 1993 | 1989 | 1989 | 1993 |
| MIN | 33.2 | 16.1 | 9.92 | 15.9 | 8.55 | 10.1 | 11.9 | 15.8 | 12.0 | 23.2 | 25.1 | 32.7 |
| (WY) | 1992 | 1992 | 1992 | 1991 | 1992 | 1992 | 1991 | 1990 | 1992 | 1990 | 1991 | 1986 |

SUMMARY STATISTICS

FOR 1992 CALENDAR YEAR

FOR 1993 WATER YEAR

WATER YEARS 1986 - 1993

| | | | |
|--------------------------|------------|--------------|-------------------|
| ANNUAL TOTAL | 17618.8 | 25785 | 50.9 |
| ANNUAL MEAN | 48.1 | 70.6 | 70.6 |
| HIGHEST ANNUAL MEAN | | | 30.8 |
| LOWEST ANNUAL MEAN | | | 1993 |
| HIGHEST DAILY MEAN | 502 Sep 30 | 525 May 30 | 1550 Oct 7 1985 |
| LOWEST DAILY MEAN | 3.9 May 9 | 11 Apr 23 | 3.9 May 9 1992 |
| ANNUAL SEVEN-DAY MINIMUM | 4.2 May 6 | 13 Mar 16 | 4.2 May 6 1992 |
| INSTANTANEOUS PEAK FLOW | | 5000 May 30 | 7480 Aug 24 1988 |
| INSTANTANEOUS PEAK STAGE | | 12.06 May 30 | 13.64 Aug 24 1988 |
| INSTANTANEOUS LOW FLOW | | 10 Apr 21 | 3.7 May 9 1992 |
| ANNUAL RUNOFF (AC-FT) | 34950 | 51140 | 36870 |
| ANNUAL RUNOFF (CFSM) | 2.63 | 3.86 | 2.78 |
| ANNUAL RUNOFF (INCHES) | 35.82 | 52.42 | 37.79 |
| 10 PERCENT EXCEEDS | 134 | 157 | 122 |
| 50 PERCENT EXCEEDS | 17 | 45 | 27 |
| 90 PERCENT EXCEEDS | 6.9 | 16 | 11 |

RIO GUANAJIBO BASIN

50136400 RIO ROSARIO NEAR HORMIGUEROS, PR--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Water years 1979 to current year.

PERIOD OF DAILY RECORD.--

SUSPENDED-SEDIMENT DISCHARGE: October 1985 to September 1993.

INSTRUMENTATION.--US D-49 SEDIMENT SAMPLER SINCE OCTOBER 1985. AUTOMATIC SEDIMENT SAMPLER SINCE 1986

REMARKS.--Sediment samples were collected by a local observer once daily during low flow and more than once daily during high flow events for concentration and particle size analyses. Sediment samples are collected periodically by survey staff. Automatic sediment sampler set to collect samples above 200 cfs.

EXTREMES FOR PERIOD OF DAILY RECORD.--

SEDIMENT CONCENTRATIONS: Maximum daily mean, 8,150 mg/L October 7, 1985; Minimum daily mean, 1 mg/L January 28, 1990.

SEDIMENT LOADS: Maximum daily, 74,700 tons (67,800 tonnes) October 7, 1985; Minimum daily, 0.05 ton (0.04 Tonne) several days.

EXTREMES FOR CURRENT YEAR.--

SEDIMENT CONCENTRATIONS: Maximum daily mean, 1,910 mg/L June 29, 1993; Minimum daily mean, 2.0 mg/L several days.

SEDIMENT LOADS: Maximum daily, 7,830 tons (7,100 tonnes) May 30, 1993; Minimum daily 0.08 ton (0.07 tonne) several days.

WATER-QUALITY DATA, WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993

| DATE | TIME | DIS- CHARGE, INST. CUBIC FEET PER SECOND | SPE- CIFIC CON- DUCT- ANCE (US/CM) | PH WATER WHOLE FIELD (STAND- ARD UNITS) | TEMPER- ATURE WATER (DEG C) | TUR- BID- ITY (NTU) | OXYGEN, DIS- SOLVED (MG/L) | OXYGEN, DIS- SOLVED (PER- CENT SATUR- ATION) | OXYGEN DEMAND, CHEM- ICAL (HIGH LEVEL) (MG/L) | COLI- FORM, FECAL, 0.45 UM-MF (COLS./ 100 ML) | STREP- TOCOCCI FECAL, (COLS. PER 100 ML) |
|-----------|------|--|---|---|--------------------------------------|------------------------------|-------------------------------------|--|---|---|---|
| OCT 1992 | | | | | | | | | | | |
| 23... | 1425 | 66 | 230 | 7.2 | 27.0 | 17 | 8.0 | 100 | 40 | 3100 | 610 |
| DEC 29... | 1115 | 15 | 276 | 8.2 | 21.8 | 3.1 | 9.0 | 102 | <10 | 730 | 550 |
| FEB 1993 | | | | | | | | | | | |
| 18... | 1325 | 2.89 | 258 | 8.0 | 23.4 | 4.0 | 10.6 | 122 | <10 | 320 | 250 |
| APR 21... | 1250 | 11 | 300 | 7.9 | 26.5 | 3.5 | 5.3 | 65 | <10 | 420 | 310 |
| JUN 04... | 1345 | 56 | 282 | 8.0 | 28.2 | 2.8 | 7.6 | 97 | <10 | 3000 | 5900 |
| SEP 08... | 1300 | 74 | 232 | 7.2 | 24.7 | 5.2 | 7.8 | 92 | <10 | 2700 | 680 |

| DATE | HARD- NESS TOTAL (MG/L AS CACO3) | HARD- NESS NONCARE WH WAT TOT FLD MG/L AS CACO3 | CALCIUM DIS- SOLVED (MG/L AS CA) | MAGNE- SIUM, DIS- SOLVED (MG/L AS MG) | SODIUM, DIS- SOLVED (MG/L AS NA) | SODIUM AD- SORP- TION RATIO | POTAS- SIUM, DIS- SOLVED (MG/L AS K) | ALKA- LILITY WAT WH TOT FET FIELD MG/L AS CACO3 | SULFIDE TOTAL (MG/L AS S) | SULFATE DIS- SOLVED (MG/L AS SO4) | CHLO- RIDE, DIS- SOLVED (MG/L AS CL) |
|-----------|---|---|--|--|--|---|---|---|------------------------------------|---|---|
| OCT 1992 | | | | | | | | | | | |
| 23... | 110 | 7 | 19 | 15 | 5.6 | 0.2 | 1.2 | 98 | <0.5 | 6.9 | 5.9 |
| DEC 29... | -- | -- | -- | -- | -- | -- | -- | 150 | -- | -- | -- |
| FEB 1993 | | | | | | | | | | | |
| 18... | -- | -- | -- | -- | -- | -- | -- | 150 | -- | -- | -- |
| APR 21... | 120 | 5 | 24 | 14 | 7.8 | 0.3 | 1.7 | 130 | <0.5 | 7.0 | 8.9 |
| JUN 04... | -- | -- | -- | -- | -- | -- | -- | 150 | -- | -- | -- |
| SEP 08... | 120 | 4 | 20 | 16 | 7.0 | 0.3 | 1.7 | 85 | -- | 6.5 | 5.8 |

WATER-QUALITY DATA, WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993

[illegible]

RIO GUANAJIBO BASIN

50136400 RIO ROSARIO NEAR HORMIGUEROS, PR--Continued

SEDIMENT DISCHARGE, SUSPENDED (TONS/DAY), WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993

| DAY | MEAN DISCHARGE (CFS) | MEAN CONCEN- TRATION (MG/L) | SEDIMENT DISCHARGE (TONS/DAY) | MEAN DISCHARGE (CFS) | MEAN CONCEN- TRATION (MG/L) | SEDIMENT DISCHARGE (TONS/DAY) | MEAN DISCHARGE (CFS) | MEAN CONCEN- TRATION (MG/L) | SEDIMENT DISCHARGE (TONS/DAY) |
|---------|----------------------------|--------------------------------------|-------------------------------------|----------------------------|--------------------------------------|-------------------------------------|----------------------------|--------------------------------------|-------------------------------------|
| OCTOBER | | | NOVEMBER | | | DECEMBER | | | |
| 1 | 373 | 1280 | 2160 | 131 | 92 | 41 | 42 | 14 | 1.6 |
| 2 | 196 | 347 | 208 | 98 | 23 | 6.1 | 37 | 12 | 1.2 |
| 3 | 132 | 31 | 11 | 80 | 17 | 3.7 | 36 | 21 | 2.0 |
| 4 | 102 | 21 | 5.7 | 76 | 101 | 26 | 34 | 22 | 2.1 |
| 5 | 90 | 45 | 14 | 67 | 21 | 3.9 | 51 | 48 | 17 |
| 6 | 117 | 196 | 153 | 64 | 11 | 1.9 | 38 | 29 | 3.2 |
| 7 | 116 | 199 | 134 | 59 | 10 | 1.6 | 30 | 15 | 1.3 |
| 8 | 147 | 240 | 117 | 55 | 10 | 1.5 | 29 | 9 | .68 |
| 9 | 116 | 133 | 47 | 51 | 11 | 1.4 | 26 | 14 | .99 |
| 10 | 385 | 1670 | 6060 | 49 | 11 | 1.4 | 25 | 37 | 2.5 |
| 11 | 204 | 229 | 161 | 47 | 10 | 1.2 | 24 | 22 | 1.4 |
| 12 | 140 | 183 | 74 | 63 | 68 | 22 | 23 | 8 | .49 |
| 13 | 104 | 81 | 25 | 80 | 138 | 65 | 31 | 26 | 11 |
| 14 | 78 | 28 | 6.1 | 229 | 860 | 1920 | 69 | 99 | 26 |
| 15 | 67 | 34 | 6.4 | 209 | 619 | 603 | 42 | 23 | 3.1 |
| 16 | 140 | 1530 | 1960 | 133 | 188 | 80 | 25 | 14 | 1.0 |
| 17 | 326 | 1320 | 2560 | 89 | 79 | 19 | 22 | 12 | .68 |
| 18 | 199 | 411 | 250 | 140 | 447 | 386 | 20 | 16 | .82 |
| 19 | 135 | 130 | 54 | 119 | 180 | 76 | 19 | 13 | .63 |
| 20 | 104 | 31 | 8.6 | 120 | 138 | 68 | 18 | 8 | .39 |
| 21 | 79 | 26 | 5.5 | 95 | 48 | 13 | 17 | 11 | .51 |
| 22 | 93 | 94 | 43 | 107 | 105 | 47 | 17 | 10 | .43 |
| 23 | 183 | 491 | 489 | 95 | 44 | 13 | 16 | 15 | .60 |
| 24 | 208 | 502 | 348 | 68 | 14 | 2.6 | 20 | 67 | 4.3 |
| 25 | 157 | 217 | 118 | 56 | 12 | 1.8 | 16 | 58 | 2.7 |
| 26 | 113 | 25 | 7.6 | 49 | 11 | 1.4 | 17 | 83 | 4.3 |
| 27 | 83 | 19 | 4.2 | 46 | 16 | 1.9 | 16 | 43 | 1.9 |
| 28 | 67 | 16 | 3.0 | 52 | 31 | 4.7 | 16 | 11 | .46 |
| 29 | 113 | 201 | 139 | 76 | 86 | 34 | 16 | 9 | .42 |
| 30 | 157 | 401 | 469 | 53 | 36 | 5.9 | 19 | 11 | .56 |
| 31 | 158 | 285 | 156 | --- | --- | --- | 16 | 12 | .50 |
| TOTAL | 4682 | --- | 15797.1 | 2656 | --- | 3454.0 | 827 | --- | 94.76 |

RIO GUANAJIBO BASIN

50136400 RIO ROSARIO NEAR HORMIGUEROS, PR--Continued

SEDIMENT DISCHARGE, SUSPENDED (TONS/DAY), WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993

| DAY | MEAN DISCHARGE (CFS) | MEAN CONCEN- TRATION (MG/L) | SEDIMENT DISCHARGE (TONS/DAY) | MEAN DISCHARGE (CFS) | MEAN CONCEN- TRATION (MG/L) | SEDIMENT DISCHARGE (TONS/DAY) | MEAN DISCHARGE (CFS) | MEAN CONCEN- TRATION (MG/L) | SEDIMENT DISCHARGE (TONS/DAY) |
|---------|----------------------------|--------------------------------------|-------------------------------------|----------------------------|--------------------------------------|-------------------------------------|----------------------------|--------------------------------------|-------------------------------------|
| JANUARY | | | FEBRUARY | | | MARCH | | | |
| 1 | 16 | 13 | .52 | 96 | 205 | 148 | 18 | 3 | .17 |
| 2 | 16 | 12 | .46 | 44 | 16 | 1.9 | 18 | 2 | .12 |
| 3 | 16 | 10 | .42 | 33 | 12 | 1.1 | 16 | 2 | .08 |
| 4 | 16 | 11 | .46 | 28 | 10 | .75 | 16 | 2 | .08 |
| 5 | 18 | 12 | .55 | 26 | 10 | .68 | 16 | 2 | .08 |
| 6 | 19 | 11 | .55 | 24 | 10 | .60 | 16 | 2 | .08 |
| 7 | 18 | 10 | .45 | 23 | 8 | .53 | 16 | 3 | .13 |
| 8 | 17 | 8 | .37 | 22 | 8 | .49 | 18 | 7 | .39 |
| 9 | 17 | 6 | .30 | 22 | 7 | .46 | 23 | 9 | .69 |
| 10 | 17 | 5 | .26 | 22 | 7 | .43 | 16 | 4 | .18 |
| 11 | 18 | 7 | .34 | 22 | 7 | .42 | 16 | 4 | .19 |
| 12 | 18 | 16 | .78 | 22 | 7 | .43 | 15 | 5 | .20 |
| 13 | 18 | 28 | 1.3 | 23 | 6 | .38 | 15 | 5 | .20 |
| 14 | 18 | 28 | 1.4 | 22 | 4 | .27 | 15 | 5 | .21 |
| 15 | 19 | 18 | .92 | 20 | 4 | .24 | 14 | 6 | .22 |
| 16 | 19 | 10 | .51 | 104 | 303 | 282 | 14 | 5 | .20 |
| 17 | 19 | 8 | .46 | 73 | 73 | 23 | 14 | 5 | .18 |
| 18 | 21 | 11 | .62 | 31 | 16 | 1.4 | 14 | 5 | .18 |
| 19 | 20 | 10 | .56 | 25 | 9 | .62 | 13 | 4 | .16 |
| 20 | 20 | 7 | .39 | 22 | 6 | .36 | 13 | 3 | .11 |
| 21 | 20 | 7 | .40 | 20 | 5 | .27 | 13 | 4 | .15 |
| 22 | 20 | 9 | .49 | 19 | 5 | .25 | 13 | 7 | .29 |
| 23 | 19 | 10 | .50 | 18 | 5 | .24 | 14 | 7 | .28 |
| 24 | 18 | 10 | .46 | 18 | 5 | .25 | 16 | 5 | .20 |
| 25 | 18 | 7 | .37 | 18 | 4 | .23 | 15 | 5 | .20 |
| 26 | 18 | 5 | .27 | 17 | 4 | .19 | 18 | 7 | .57 |
| 27 | 17 | 6 | .30 | 16 | 4 | .18 | 30 | 17 | 2.3 |
| 28 | 18 | 10 | .47 | 17 | 4 | .18 | 20 | 7 | .37 |
| 29 | 162 | 477 | 532 | --- | --- | --- | 15 | 7 | .29 |
| 30 | 40 | 23 | 3.0 | --- | --- | --- | 15 | 7 | .28 |
| 31 | 46 | 72 | 60 | --- | --- | --- | 17 | 6 | .24 |
| TOTAL | 756 | --- | 609.88 | 847 | --- | 465.85 | 502 | --- | 9.02 |

RIO GUANAJIBO BASIN

50136400 RIO ROSARIO NEAR HORMIGUEROS, PR--Continued

SEDIMENT DISCHARGE, SUSPENDED (TONS/DAY), WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993

| DAY | MEAN DISCHARGE (CFS) | MEAN CONCEN- TRATION (MG/L) | SEDIMENT DISCHARGE (TONS/DAY) | MEAN DISCHARGE (CFS) | MEAN CONCEN- TRATION (MG/L) | SEDIMENT DISCHARGE (TONS/DAY) | MEAN DISCHARGE (CFS) | MEAN CONCEN- TRATION (MG/L) | SEDIMENT DISCHARGE (TONS/DAY) |
|-------|----------------------------|--------------------------------------|-------------------------------------|----------------------------|--------------------------------------|-------------------------------------|----------------------------|--------------------------------------|-------------------------------------|
| APRIL | | | MAY | | | JUNE | | | |
| 1 | 15 | 5 | .19 | 201 | 371 | 787 | 113 | 109 | 37 |
| 2 | 14 | 5 | .18 | 271 | 617 | 1170 | 83 | 31 | 7.7 |
| 3 | 15 | 5 | .18 | 225 | 654 | 838 | 69 | 11 | 2.0 |
| 4 | 13 | 5 | .18 | 140 | 211 | 96 | 60 | 8 | 1.3 |
| 5 | 14 | 5 | .18 | 257 | 1310 | 2840 | 55 | 5 | .82 |
| 6 | 13 | 6 | .21 | 150 | 240 | 115 | 54 | 5 | .72 |
| 7 | 13 | 6 | .22 | 75 | 67 | 16 | 53 | 5 | .72 |
| 8 | 13 | 5 | .17 | 52 | 33 | 4.8 | 87 | 127 | 68 |
| 9 | 16 | 4 | .18 | 117 | 290 | 252 | 149 | 450 | 402 |
| 10 | 12 | 4 | .13 | 83 | 61 | 15 | 133 | 171 | 68 |
| 11 | 79 | 184 | 164 | 58 | 19 | 3.1 | 82 | 76 | 19 |
| 12 | 167 | 609 | 1120 | 51 | 14 | 1.9 | 123 | 302 | 315 |
| 13 | 112 | 241 | 212 | 49 | 7 | .99 | 97 | 100 | 29 |
| 14 | 54 | 57 | 9.5 | 47 | 5 | .63 | 72 | 36 | 7.1 |
| 15 | 28 | 41 | 3.3 | 42 | 5 | .57 | 65 | 10 | 1.8 |
| 16 | 19 | 28 | 1.5 | 43 | 5 | .57 | 69 | 5 | .96 |
| 17 | 16 | 13 | .57 | 45 | 4 | .54 | 59 | 4 | .71 |
| 18 | 25 | 19 | 3.1 | 44 | 4 | .53 | 58 | 10 | 1.7 |
| 19 | 18 | 23 | 1.2 | 43 | 5 | .57 | 82 | 54 | 14 |
| 20 | 12 | 16 | .53 | 50 | 5 | .69 | 84 | 62 | 16 |
| 21 | 17 | 11 | .95 | 46 | 6 | .80 | 66 | 25 | 4.8 |
| 22 | 15 | 10 | .41 | 43 | 9 | 1.0 | 62 | 10 | 1.7 |
| 23 | 11 | 11 | .32 | 116 | 250 | 198 | 58 | 4 | .67 |
| 24 | 52 | 87 | 40 | 65 | 50 | 9.8 | 52 | 4 | .62 |
| 25 | 22 | 102 | 6.9 | 52 | 32 | 4.6 | 58 | 5 | .89 |
| 26 | 13 | 68 | 2.5 | 175 | 639 | 1360 | 71 | 6 | 1.2 |
| 27 | 12 | 60 | 2.0 | 270 | 634 | 1210 | 74 | 6 | 1.1 |
| 28 | 32 | 89 | 8.0 | 166 | 277 | 136 | 176 | 543 | 729 |
| 29 | 21 | 41 | 2.6 | 113 | 123 | 40 | 328 | 1910 | 3710 |
| 30 | 19 | 13 | .65 | 525 | 1210 | 7830 | 142 | 218 | 103 |
| 31 | --- | --- | --- | 182 | 264 | 149 | --- | --- | --- |
| TOTAL | 882 | --- | 1581.85 | 3796 | --- | 17083.09 | 2734 | --- | 5546.51 |

RIO GUANAJIBO BASIN

50136400 RIO ROSARIO NEAR HORMIGUEROS, PR--Continued

SEDIMENT DISCHARGE, SUSPENDED (TONS/DAY), WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993

| DAY | MEAN DISCHARGE (CFS) | MEAN CONCEN- TRATION (MG/L) | SEDIMENT DISCHARGE (TONS/DAY) | MEAN DISCHARGE (CFS) | MEAN CONCEN- TRATION (MG/L) | SEDIMENT DISCHARGE (TONS/DAY) | MEAN DISCHARGE (CFS) | MEAN CONCEN- TRATION (MG/L) | SEDIMENT DISCHARGE (TONS/DAY) |
|-------|----------------------------|--------------------------------------|-------------------------------------|----------------------------|--------------------------------------|-------------------------------------|----------------------------|--------------------------------------|-------------------------------------|
| JULY | | | AUGUST | | | SEPTEMBER | | | |
| 1 | 70 | 48 | 10 | 41 | 3 | .32 | 57 | 65 | 10 |
| 2 | 54 | 15 | 2.3 | 40 | 2 | .26 | 78 | 116 | 45 |
| 3 | 48 | 10 | 1.3 | 41 | 2 | .22 | 131 | 568 | 1040 |
| 4 | 44 | 10 | 1.2 | 45 | 3 | .42 | 239 | 963 | 2350 |
| 5 | 63 | 50 | 13 | 51 | 19 | 4.4 | 145 | 218 | 98 |
| 6 | 86 | 122 | 64 | 39 | 12 | 1.4 | 101 | 111 | 38 |
| 7 | 257 | 1000 | 3040 | 40 | 8 | .90 | 110 | 128 | 46 |
| 8 | 115 | 153 | 62 | 42 | 22 | 2.3 | 132 | 238 | 144 |
| 9 | 63 | 37 | 6.8 | 49 | 42 | 7.3 | 508 | 1490 | 7640 |
| 10 | 50 | 15 | 2.1 | 42 | 14 | 1.8 | 195 | 355 | 212 |
| 11 | 46 | 10 | 1.2 | 39 | 4 | .43 | 158 | 224 | 120 |
| 12 | 45 | 10 | 1.1 | 38 | 4 | .42 | 179 | 436 | 398 |
| 13 | 43 | 8 | .99 | 37 | 4 | .39 | 163 | 151 | 75 |
| 14 | 46 | 8 | 1.0 | 37 | 4 | .39 | 133 | 68 | 30 |
| 15 | 42 | 7 | .91 | 36 | 10 | .95 | 109 | 52 | 17 |
| 16 | 39 | 6 | .67 | 82 | 57 | 16 | 94 | 16 | 4.1 |
| 17 | 38 | 5 | .55 | 46 | 8 | 1.1 | 128 | 395 | 355 |
| 18 | 37 | 4 | .45 | 37 | 4 | .45 | 168 | 326 | 270 |
| 19 | 37 | 4 | .41 | 34 | 6 | .54 | 176 | 339 | 191 |
| 20 | 37 | 4 | .40 | 32 | 7 | .62 | 154 | 373 | 284 |
| 21 | 36 | 4 | .45 | 34 | 7 | .64 | 132 | 126 | 47 |
| 22 | 44 | 6 | .78 | 140 | 489 | 795 | 118 | 67 | 25 |
| 23 | 45 | 9 | 1.1 | 64 | 57 | 17 | 112 | 126 | 45 |
| 24 | 42 | 9 | 1.0 | 31 | 13 | 1.1 | 104 | 38 | 11 |
| 25 | 43 | 7 | .91 | 39 | 33 | 6.2 | 95 | 10 | 2.6 |
| 26 | 49 | 6 | .86 | 39 | 35 | 4.5 | 127 | 206 | 163 |
| 27 | 47 | 5 | .64 | 54 | 44 | 7.1 | 223 | 633 | 607 |
| 28 | 40 | 4 | .43 | 110 | 610 | 731 | 305 | 873 | 1330 |
| 29 | 40 | 3 | .37 | 125 | 194 | 98 | 188 | 48 | 26 |
| 30 | 40 | 3 | .32 | 117 | 236 | 93 | 148 | 16 | 6.3 |
| 31 | 40 | 3 | .33 | 68 | 110 | 21 | --- | --- | --- |
| TOTAL | 1726 | --- | 3217.57 | 1669 | --- | 1815.15 | 4710 | --- | 15630.0 |
| YEAR | 25787 | | 65304.78 | | | | | | |

RIO GUANAJIBO BASIN

50136400 RIO ROSARIO NEAR HORMIGUEROS, PR--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993

PARTICLE-SIZE DISTRIBUTION OF SUSPENDED SEDIMENT

| DATE | TIME | DIS- CHARGE, INST. CUBIC FEET PER SECOND | SEDI- MENT, DIS- CHARGE, SUS- PENDE (MG/L) | SEDI- MENT, DIS- CHARGE, SUS- PENDE (T/DAY) | SED. SUSP. FALL DIAM. PERCENT FINER THAN .002 MM | SED. SUSP. FALL DIAM. PERCENT FINER THAN .004 MM | SED. SUSP. FALL DIAM. PERCENT FINER THAN .008 MM | |
|----------|------|---|---|--|--|--|--|--|
| | | | | | | | | |
| OCT 1992 | | | | | | | | |
| 10... | 1608 | 2960 | 23600 | 188000 | 15 | 19 | 23 | |
| NOV | | | | | | | | |
| 15... | 1829 | 432 | 2460 | 2870 | 42 | 55 | 59 | |
| APR 1993 | | | | | | | | |
| 12... | 1304 | 967 | 4110 | 10700 | 58 | -- | 88 | |
| MAY | | | | | | | | |
| 30... | 1625 | 4290 | 13800 | 160000 | 32 | 36 | 41 | |
| JUN | | | | | | | | |
| 28... | 1635 | 647 | 6460 | 11300 | 17 | 20 | 23 | |
| AUG | | | | | | | | |
| 28... | 1832 | 570 | 10300 | 15800 | 29 | 32 | 38 | |
| SEP | | | | | | | | |
| 09... | 1800 | 1050 | 955 | 27000 | 31 | 37 | 48 | |
| | | | | | | | | |
| DATE | | SED. SUSP. FALL DIAM. PERCENT FINER THAN .016 MM | SED. SUSP. FALL DIAM. PERCENT FINER THAN .031 MM | SED. SUSP. SIEVE DIAM. PERCENT FINER THAN .062 MM | SED. SUSP. SIEVE DIAM. PERCENT FINER THAN .125 MM | SED. SUSP. SIEVE DIAM. PERCENT FINER THAN .250 MM | SED. SUSP. SIEVE DIAM. PERCENT FINER THAN .500 MM | SED. SUSP. SIEVE DIAM. PERCENT FINER THAN 1.00 MM |
| OCT 1992 | | | | | | | | |
| 10... | 28 | 33 | 41 | 58 | 84 | 96 | 98 | |
| NOV | | | | | | | | |
| 15... | 71 | 80 | 91 | 96 | 99 | 99.7 | 100 | |
| APR 1993 | | | | | | | | |
| 12... | 98 | 98.9 | -- | -- | 99 | 99.7 | 100 | |
| MAY | | | | | | | | |
| 30... | 50 | 59 | 70 | 83 | 94 | 99 | 100 | |
| JUN | | | | | | | | |
| 06... | 28 | 34 | 45 | 61 | 77 | 89 | 97 | |
| AUG | | | | | | | | |
| 28... | 47 | 59 | 74 | 82 | 87 | 94 | 99 | |
| SEP | | | | | | | | |
| 03... | 55 | 67 | 77 | 93 | 98 | 98.9 | 99 | |

RIO GUANAJIBO BASIN

50136400 RIO ROSARIO NEAR HORMIGUEROS , PR--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993

SILT AND CLAY PERCENT OF SUSPENDED SEDIMENT

| DATE | TIME | STREAM- FLOW, INSTAN- TANEOUS (CFS) | SEDI- MENT, SUS- PENDE (MG/L) | SEDI- MENT, DIS- CHARGE, SUS- PENDE (T/DAY) | SED. SUSP. SIEVE DIAM. PERCENT FINER THAN .062 MM |
|----------|------|---|---|---|--|
| OCT 1992 | | | | | |
| 01... | 1750 | 471 | 11600 | 14750 | 41 |
| NOV | | | | | |
| 10... | 1538 | 1390 | 10600 | 39780 | 57 |
| 10... | 1545 | 1750 | 13800 | 65200 | 65 |
| 10... | 1735 | 1170 | 5350 | 16900 | 81 |
| 10... | 1905 | 655 | 3100 | 5480 | 88 |
| 10... | 2105 | 442 | 1700 | 2030 | 91 |
| 16... | 1821 | 350 | 16600 | 15690 | 25 |
| 17... | 1654 | 945 | 11400 | 29090 | 38 |
| 17... | 1749 | 855 | 2150 | 4960 | 89 |
| 18... | 1958 | 283 | 1790 | 1370 | 96 |
| MAR 1993 | | | | | |
| 27... | 1802 | 87 | 1220 | 4220 | 97 |
| APR | | | | | |
| 12... | 1305 | 967 | 7290 | 19030 | 69 |
| MAY | | | | | |
| 01... | 1655 | 1270 | 6250 | 22360 | 68 |
| 02... | 1525 | 1210 | 4450 | 14540 | 69 |
| 02... | 1630 | 671 | 2370 | 4290 | 89 |
| 02... | 1745 | 515 | 2180 | 3030 | 87 |
| 05... | 1615 | 646 | 10200 | 17790 | 42 |
| 05... | 2000 | 470 | 1970 | 2500 | 85 |
| 09... | 1615 | 470 | 1590 | 2020 | 84 |
| 23... | 0640 | 190 | 2100 | 1080 | 98 |
| 27... | 1635 | 850 | 2430 | 5580 | 86 |
| 30... | 1540 | 1990 | 7400 | 39760 | 70 |
| 30... | 2010 | 573 | 1630 | 2570 | 88 |
| JUN | | | | | |
| 09... | 1830 | 364 | 1560 | 1530 | 92 |
| JUL | | | | | |
| 07... | 1820 | 609 | 3300 | 5430 | 89 |
| AUG | | | | | |
| 22... | 1955 | 688 | 4870 | 9050 | 51 |
| SEP | | | | | |
| 04... | 1438 | 453 | 4880 | 6230 | 83 |
| 12... | 1815 | 599 | 1930 | 3120 | 62 |
| 27... | 1857 | 470 | 2210 | 2800 | 90 |
| 28... | 1740 | 380 | 1550 | 1590 | 86 |

RIO GUANAJIBO BASIN

50138000 RIO GUANAJIBO NEAR HORMIGUEROS, PR

LOCATION.--Lat 18°08'36", long 67°08'57", Hydrologic Unit 21010003, at bridge on Highway 100, 1.4 mi (2.3 km) west of Hormigueros, and 2.0 mi (3.2 km) downstream from Río Rosario.

DRAINAGE AREA.--120 mi² (311 km²).

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--Annual low-flow measurements 1959, monthly measurements April 1959 to November 1967, January 1973 to current year.

GAGE.--Water-stage recorder. Datum of gage is at mean sea level. Previous to Nov. 7, 1980, at site 0.3 mi (0.5 km) upstream at datum 7.36 ft (2.243 m) higher.

REMARKS.--Records fair. Gage-height and precipitation satellite telemetry at station. Daily discharges affected by sewage treatment plant about 2.1 mi (3.4 km) upstream from gage.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993
DAILY MEAN VALUES

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|-------|-------|-------|------|------|------|------|------|-------|------|------|-------|-------|
| 1 | 956 | 489 | 351 | 92 | 340 | 48 | 36 | 209 | 286 | 143 | 53 | 152 |
| 2 | 450 | 392 | 328 | 86 | 251 | 50 | 32 | 462 | 200 | 110 | 51 | 152 |
| 3 | 297 | 396 | 251 | 85 | 187 | 43 | 30 | 406 | 153 | 97 | 51 | 189 |
| 4 | 248 | 533 | 214 | 82 | 134 | 40 | 31 | 328 | 123 | 87 | 68 | 309 |
| 5 | 256 | 412 | 184 | 81 | 109 | 39 | 31 | 325 | 107 | 84 | 79 | 244 |
| 6 | 496 | 290 | 185 | 85 | 89 | 39 | 28 | 377 | 97 | 109 | 94 | 210 |
| 7 | 500 | 251 | 160 | 95 | 82 | 38 | 28 | 164 | 94 | 255 | 69 | 203 |
| 8 | 1140 | 226 | 147 | 118 | 75 | 39 | 26 | 121 | 139 | 306 | 152 | 313 |
| 9 | 855 | 217 | 139 | 93 | 70 | 46 | 32 | 228 | 325 | 129 | 122 | 843 |
| 10 | 1080 | 210 | 133 | 82 | 68 | 37 | 28 | 192 | 306 | 103 | 80 | 1020 |
| 11 | 3360 | 226 | 121 | 78 | 65 | 34 | 59 | 121 | 153 | 92 | 60 | 375 |
| 12 | 1850 | 337 | 112 | 76 | 62 | 33 | 160 | 105 | 199 | 88 | 58 | 349 |
| 13 | 975 | 324 | 132 | 73 | 60 | 33 | 136 | 91 | 179 | 119 | 52 | 348 |
| 14 | 611 | 509 | 318 | 72 | 56 | 30 | 122 | 83 | 113 | 114 | 65 | 235 |
| 15 | 569 | 653 | 211 | 74 | 55 | 33 | 184 | 78 | 104 | 86 | 78 | 205 |
| 16 | 519 | 695 | 135 | 69 | 117 | 48 | 254 | 73 | 124 | 75 | 311 | 184 |
| 17 | 994 | 515 | 120 | 67 | 226 | 50 | 85 | 68 | 94 | 69 | 200 | 205 |
| 18 | 1290 | 564 | 111 | 65 | 92 | 35 | 57 | 64 | 92 | 67 | 133 | 367 |
| 19 | 642 | 576 | 106 | 64 | 73 | 31 | 62 | 61 | 244 | 65 | 115 | 589 |
| 20 | 501 | 728 | 100 | 63 | 63 | 30 | 45 | 75 | 212 | 60 | 104 | 330 |
| 21 | 423 | 625 | 98 | 63 | 59 | 27 | 45 | 68 | 126 | 58 | 96 | 254 |
| 22 | 412 | 499 | 95 | 63 | 54 | 27 | 51 | 62 | 100 | 57 | 450 | 211 |
| 23 | 535 | 436 | 93 | 67 | 51 | 26 | 38 | 179 | 90 | 62 | 873 | 459 |
| 24 | 1210 | 341 | 94 | 60 | 49 | 30 | 75 | 259 | 82 | 58 | 236 | 532 |
| 25 | 879 | 286 | 101 | 58 | 56 | 31 | 78 | 166 | 76 | 58 | 190 | 245 |
| 26 | 568 | 243 | 194 | 56 | 51 | 29 | 47 | 192 | 72 | 65 | 168 | 454 |
| 27 | 450 | 285 | 169 | 55 | 49 | 122 | 40 | 402 | 69 | 67 | 211 | 764 |
| 28 | 380 | 324 | 107 | 51 | 47 | 103 | 82 | 451 | 164 | 56 | 246 | 1230 |
| 29 | 460 | 321 | 107 | 681 | --- | 49 | 90 | 266 | 446 | 54 | 274 | 724 |
| 30 | 455 | 420 | 108 | 369 | --- | 55 | 76 | 657 | 441 | 53 | 285 | 375 |
| 31 | 529 | --- | 100 | 279 | --- | 46 | --- | 1060 | --- | 53 | 176 | --- |
| TOTAL | 23890 | 12323 | 4824 | 3402 | 2690 | 1321 | 2088 | 7393 | 5010 | 2899 | 5200 | 12070 |
| MEAN | 771 | 411 | 156 | 110 | 96.1 | 42.6 | 69.6 | 238 | 167 | 93.5 | 168 | 402 |
| MAX | 3360 | 728 | 351 | 681 | 340 | 122 | 254 | 1060 | 446 | 306 | 873 | 1230 |
| MIN | 248 | 210 | 93 | 51 | 47 | 26 | 26 | 61 | 69 | 53 | 51 | 152 |
| AC-FT | 47390 | 24440 | 9570 | 6750 | 5340 | 2620 | 4140 | 14660 | 9940 | 5750 | 10310 | 23940 |
| CFSM | 6.42 | 3.42 | 1.30 | .91 | .80 | .36 | .58 | 1.99 | 1.39 | .78 | 1.40 | 3.35 |
| IN. | 7.41 | 3.82 | 1.50 | 1.05 | .83 | .41 | .65 | 2.29 | 1.55 | .90 | 1.61 | 3.74 |

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1973 - 1993, BY WATER YEAR (WY)

| | | | | | | | | | | | | |
|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|
| MEAN | 503 | 440 | 132 | 59.3 | 47.2 | 44.9 | 71.0 | 185 | 114 | 106 | 230 | 502 |
| MAX | 1254 | 1518 | 422 | 110 | 96.1 | 244 | 316 | 636 | 504 | 240 | 757 | 2075 |
| (WY) | 1986 | 1978 | 1976 | 1993 | 1993 | 1989 | 1989 | 1980 | 1979 | 1984 | 1988 | 1975 |
| MIN | 97.5 | 42.7 | 15.4 | 13.8 | 13.9 | 10.6 | 16.1 | 12.7 | 9.23 | 26.4 | 42.3 | 95.4 |
| (WY) | 1992 | 1992 | 1992 | 1973 | 1977 | 1977 | 1977 | 1977 | 1977 | 1976 | 1976 | 1991 |

SUMMARY STATISTICS

FOR 1992 CALENDAR YEAR

FOR 1993 WATER YEAR

WATER YEARS 1973 - 1993

| | | | | | | |
|--------------------------|---------|--------|--------|--------|--------|-------------|
| ANNUAL TOTAL | 74264.4 | | 83110 | | | |
| ANNUAL MEAN | 203 | | 228 | | 206 | |
| HIGHEST ANNUAL MEAN | | | | | 402 | 1979 |
| LOWEST ANNUAL MEAN | | | | | 104 | 1992 |
| HIGHEST DAILY MEAN | 3360 | Oct 11 | 3360 | Oct 11 | 35000 | Sep 16 1975 |
| LOWEST DAILY MEAN | 6.2 | May 11 | 26 | Mar 23 | 5.0 | Jun 18 1977 |
| ANNUAL SEVEN-DAY MINIMUM | 7.6 | May 7 | 29 | Mar 20 | 5.5 | Jun 17 1977 |
| INSTANTANEOUS PEAK FLOW | | | 5310 | Oct 11 | 128000 | Sep 16 1975 |
| INSTANTANEOUS PEAK STAGE | | | 21.84 | Oct 11 | 28.50 | Sep 16 1975 |
| INSTANTANEOUS LOW FLOW | | | | | 4.6 | Jun 22 1977 |
| ANNUAL RUNOFF (AC-PT) | 147300 | | 164800 | | 148900 | |
| ANNUAL RUNOFF (CFSM) | 1.69 | | 1.90 | | 1.71 | |
| ANNUAL RUNOFF (INCHES) | 23.02 | | 25.76 | | 23.27 | |
| 10 PERCENT EXCEEDS | 534 | | 517 | | 456 | |
| 50 PERCENT EXCEEDS | 69 | | 115 | | 78 | |
| 90 PERCENT EXCEEDS | 15 | | 46 | | 21 | |

RIO GUANAJIBO BASIN

50138000 RIO GUANAJIBO NEAR HORMIGUEROS, PR--Continued

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Water years 1958 to current year.

WATER-QUALITY DATA, WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993

| DATE | TIME | DIS-CHARGE, INST. CUBIC FEET PER SECOND | SPE-CIFIC CON-DUCT-ANCE (US/CM) | PH WATER WHOLE FIELD (STAND-ARD UNITS) | TEMPER-ATURE WATER (DEG C) | TUR-BID-ITY (NTU) | OXYGEN, DIS-SOLVED (MG/L) | OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION) | OXYGEN DEMAND, CHEM-ICAL (HIGH LEVEL) (MG/L) | COLI-FORM, FECAL, 0.45 UM-MF (COLS./ 100 ML) | STREP-TOCOCCI, FECAL, (COLS. PER 100 ML) |
|-----------|------|---|---------------------------------|--|----------------------------|-------------------|---------------------------|---|--|--|--|
| OCT 1992 | | | | | | | | | | | |
| 23... | 1230 | 485 | 345 | 7.0 | 27.0 | 44 | 4.9 | 61 | <10 | K41000 | 5100 |
| DEC 11... | 1045 | 128 | 480 | 8.0 | 23.8 | 10 | 6.8 | 74 | <10 | 500 | 210 |
| FEB 1993 | | | | | | | | | | | |
| 18... | 1120 | 102 | 381 | 7.9 | 23.5 | 14 | 8.6 | 99 | <10 | 2400 | 570 |
| APR 20... | 1340 | 48 | 450 | 7.5 | 28.0 | 1.0 | 4.1 | 52 | 13 | 530 | 480 |
| JUN 03... | 1320 | 170 | 414 | 7.6 | 29.0 | 13 | 5.3 | 68 | <10 | 4400 | 660 |
| AUG 19... | 1145 | 119 | 400 | 7.3 | 28.5 | 2.0 | 3.4 | 42 | 38 | 1400 | 530 |

| DATE | HARD-NESS TOTAL (MG/L AS CaCO3) | HARD-NESS NONCARB WH WAT TOT FLD MG/L AS CaCO3 | CALCIUM DIS-SOLVED (MG/L AS Ca) | MAGNE-SIUM, DIS-SOLVED (MG/L AS Mg) | SODIUM, DIS-SOLVED (MG/L AS Na) | SODIUM AD-SORP-TION RATIO | POTAS-SIUM, DIS-SOLVED (MG/L AS K) | ALKA-LINITY WAT WH TOT FET FIELD MG/L AS CaCO3 | SULFIDE TOTAL (MG/L AS S) | SULFATE DIS-SOLVED (MG/L AS SO4) | CHLO-RIDE, DIS-SOLVED (MG/L AS Cl) |
|-----------|---------------------------------|--|---------------------------------|-------------------------------------|---------------------------------|---------------------------|------------------------------------|--|---------------------------|----------------------------------|------------------------------------|
| OCT 1992 | | | | | | | | | | | |
| 23... | 160 | 22 | 24 | 25 | 8.4 | 0.3 | 2.2 | 160 | <0.5 | 13 | 11 |
| DEC 11... | -- | -- | -- | -- | -- | -- | -- | 220 | -- | -- | -- |
| FEB 1993 | | | | | | | | | | | |
| 18... | -- | -- | -- | -- | -- | -- | -- | 170 | -- | -- | -- |
| APR 20... | 210 | 30 | 30 | 32 | 16 | 0.5 | 2.4 | 200 | <0.5 | 18 | 18 |
| JUN 03... | -- | -- | -- | -- | -- | -- | -- | 190 | -- | -- | -- |
| AUG 19... | 220 | 8 | 40 | 29 | 140 | 4 | 9.0 | 130 | -- | 76 | 210 |

| DATE | FLUO-RIDE, DIS-SOLVED (MG/L AS F) | SILICA, DIS-SOLVED (MG/L AS SiO2) | SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L) | SOLIDS, DIS-SOLVED (TONS PER DAY) | RESIDUE TOTAL AT 105 DEG. C, SUS-PENDED (MG/L) | NITRO-GEN, NITRATE TOTAL (MG/L AS N) | NITRO-GEN, NITRITE TOTAL (MG/L AS N) | NITRO-GEN, NO2+NO3 TOTAL (MG/L AS N) | NITRO-GEN, AMMONIA TOTAL (MG/L AS N) | NITRO-GEN, ORGANIC TOTAL (MG/L AS N) |
|-----------|-----------------------------------|-----------------------------------|---|-----------------------------------|--|--------------------------------------|--------------------------------------|--------------------------------------|--------------------------------------|--------------------------------------|
| OCT 1992 | | | | | | | | | | |
| 23... | 0.10 | 29 | 209 | 273 | 4 | 0.530 | 0.020 | 0.550 | 0.050 | 0.55 |
| DEC 11... | -- | -- | -- | -- | <1 | 0.630 | 0.070 | 0.700 | 0.410 | 0.09 |
| FEB 1993 | | | | | | | | | | |
| 18... | -- | -- | -- | -- | 27 | 0.760 | 0.040 | 0.800 | 0.230 | 0.37 |
| APR 20... | 0.10 | 19 | 255 | 32.8 | 21 | 0.770 | 0.030 | 0.800 | 0.140 | 0.36 |
| JUN 03... | -- | -- | -- | -- | 39 | 0.860 | 0.040 | 0.900 | 0.320 | 0.58 |
| AUG 19... | 0.20 | 25 | 268 | 73.2 | 8 | 0.750 | 0.050 | 0.800 | 0.290 | 0.51 |

RIO GUANAJIBO BASIN

50138000 RIO GUANAJIBO NEAR HORMIGUEROS, PR--Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993

| DATE | NITRO- GEN, AM- MONIA + ORGANIC TOTAL (MG/L AS N) | NITRO- GEN, TOTAL (MG/L AS N) | NITRO- GEN, TOTAL (MG/L AS NO3) | PHOS- PHORUS TOTAL (MG/L AS P) | ARSENIC TOTAL (UG/L AS AS) | BARIUM, TOTAL RECOV- ERABLE (UG/L AS BA) | BORON, TOTAL RECOV- ERABLE (UG/L AS B) | CADMIUM TOTAL RECOV- ERABLE (UG/L AS CD) | CHRO- MIUM, TOTAL RECOV- ERABLE (UG/L AS CR) | COPPER, TOTAL RECOV- ERABLE (UG/L AS CU) |
|----------|---|---|---|--|-------------------------------------|---|---|---|--|---|
| OCT 1992 | | | | | | | | | | |
| 23... | 0.60 | 1.2 | 5.1 | 0.280 | <1 | <100 | 20 | <1 | 4 | <10 |
| DEC | | | | | | | | | | |
| 11... | 0.50 | 1.2 | 5.3 | 0.460 | -- | -- | -- | -- | -- | -- |
| FEB 1993 | | | | | | | | | | |
| 18... | 0.60 | 1.4 | 6.2 | 0.190 | -- | -- | -- | -- | -- | -- |
| APR | | | | | | | | | | |
| 20... | 0.50 | 1.3 | 5.8 | 0.280 | <1 | <100 | 30 | <1 | 3 | <10 |
| JUN | | | | | | | | | | |
| 03... | 0.90 | 1.8 | 8.0 | 0.220 | -- | -- | -- | -- | -- | -- |
| AUG | | | | | | | | | | |
| 19... | 0.80 | 1.6 | 7.1 | 0.310 | -- | -- | -- | -- | -- | -- |

| DATE | IRON, TOTAL RECOV- ERABLE (UG/L AS FE) | LEAD, TOTAL RECOV- ERABLE (UG/L AS PB) | MANGA- NESE, TOTAL RECOV- ERABLE (UG/L AS MN) | MERCURY TOTAL RECOV- ERABLE (UG/L AS HG) | SELE- NIUM, TOTAL (UG/L AS SE) | SILVER, TOTAL RECOV- ERABLE (UG/L AS AG) | ZINC, TOTAL RECOV- ERABLE (UG/L AS ZN) | CYANIDE TOTAL (MG/L AS CN) | PHENOLS TOTAL (UG/L) | METHY- LENE BLUE ACTIVE SUB- STANCE (MG/L) |
|----------|---|---|---|---|--|---|---|-------------------------------------|----------------------------|--|
| OCT 1992 | | | | | | | | | | |
| 23... | 1100 | 2 | 120 | <0.10 | <1 | <1 | 10 | <0.010 | <1 | 0.04 |
| DEC | | | | | | | | | | |
| 11... | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| FEB 1993 | | | | | | | | | | |
| 18... | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| APR | | | | | | | | | | |
| 20... | 570 | <1 | 100 | <0.10 | <1 | <1 | 20 | <0.010 | 2 | 0.03 |
| JUN | | | | | | | | | | |
| 03... | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| AUG | | | | | | | | | | |
| 19... | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |

PESTICIDE ANALYSES

| DATE | TIME | PCB, TOTAL (UG/L) | ALDRIN, TOTAL (UG/L) | CHLOR- DANE, TOTAL (UG/L) | DDD, TOTAL (UG/L) | DDE, TOTAL (UG/L) | DDT, TOTAL (UG/L) | DI- AZINON, TOTAL (UG/L) | DI- ELDIN, TOTAL (UG/L) | ENDO- SULFAN, TOTAL (UG/L) |
|----------|------|-------------------------|----------------------------|------------------------------------|-------------------------|-------------------------|-------------------------|-----------------------------------|----------------------------------|-------------------------------------|
| JUN 1993 | | | | | | | | | | |
| 25... | 1100 | <0.1 | <0.010 | <0.1 | <0.010 | <0.010 | <0.010 | <0.01 | <0.010 | <0.010 |

| DATE | ENDRIN WATER UNFLTRD REC (UG/L) | ETHION, TOTAL (UG/L) | HEPTA- CHLOR, TOTAL (UG/L) | HEPTA- CHLOR EPOXIDE TOTAL (UG/L) | LINDANE TOTAL (UG/L) | MALA- THION, TOTAL (UG/L) | METH- OXY- CHLOR, TOTAL (UG/L) | METHYL PARA- THION, TOTAL (UG/L) | MIREX, TOTAL (UG/L) |
|----------|---|----------------------------|-------------------------------------|---|----------------------------|------------------------------------|--|--|---------------------------|
| JUN 1993 | | | | | | | | | |
| 25... | <0.010 | <0.01 | <0.010 | <0.010 | <0.010 | <0.01 | <0.01 | <0.01 | <0.01 |

| DATE | PARA- THION, TOTAL (UG/L) | NAPH- THA- LENES, POLY- CHLOR. TOTAL (UG/L) | PER- THANE TOTAL (UG/L) | TOX- APHENE, TOTAL (UG/L) | TOTAL TRI- THION (UG/L) | 2,4-D, TOTAL (UG/L) | 2,4,5-T TOTAL (UG/L) | 2,4-DP TOTAL (UG/L) | SILVEX, TOTAL (UG/L) |
|----------|------------------------------------|---|----------------------------------|------------------------------------|----------------------------------|---------------------------|----------------------------|---------------------------|----------------------------|
| JUN 1993 | | | | | | | | | |
| 25... | <0.01 | <0.10 | <0.1 | <1 | <0.01 | 0.06 | <0.01 | <0.01 | <0.01 |

RIO YAGÜEZ BASIN

50138800 RIO YAGÜEZ NEAR MAYAGÜEZ, PR

WATER-QUALITY RECORDS

LOCATION.--Lat 18°12'31", long 67°07'07", at steel-truss bridge on unnumbered paved road about 800 ft (244 m) south of Highway 106, 1.8 mi (2.9 km) west of Highways 106 and 352 junction, and 1.4 mi (2.3 km) east-northeast from Mayagüez plaza.

DRAINAGE AREA.--6.7 mi² (17.3 km²).

PERIOD OF RECORD.--Water years 1979 to current year.

WATER-QUALITY DATA, WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993

| DATE | TIME | DIS-CHARGE, INST. CUBIC FEET PER SECOND | SPECIFIC CONDUCTANCE (US/CM) | PH WATER WHOLE FIELD (STANDARD UNITS) | TEMPERATURE WATER (DEG C) | TURBIDITY (NTU) | OXYGEN, DIS-SOLVED (MG/L) | OXYGEN, DIS-SOLVED (PER-CENT SATURATION) | OXYGEN DEMAND, CHEMICAL (HIGH LEVEL) (MG/L) | COLIFORM, FECAL, 0.45 UM-MF (COLS./100 ML) | STREPTOCOCCI, TOCOCAL, (COLS. PER 100 ML) |
|----------|------|---|------------------------------|---------------------------------------|---------------------------|-----------------|---------------------------|--|---|--|---|
| OCT 1992 | | | | | | | | | | | |
| 29... | 1420 | 9.0 | 276 | 7.4 | 29.0 | 0.80 | 5.1 | 66 | 12 | 2000 | 680 |
| DEC | | | | | | | | | | | |
| 11... | 1210 | 7.4 | 316 | 8.1 | 23.9 | 1.1 | 9.5 | 112 | <10 | 220 | 580 |
| FEB 1993 | | | | | | | | | | | |
| 18... | 1450 | 11 | 286 | 7.9 | 23.8 | 1.2 | 10.5 | 124 | <10 | 1300 | 810 |
| APR | | | | | | | | | | | |
| 20... | 1515 | 5.7 | 295 | 7.6 | 27.5 | 0.60 | 5.0 | 63 | <10 | 240 | 310 |
| JUN | | | | | | | | | | | |
| 04... | 1000 | 5.0 | 279 | 8.0 | 25.8 | 2.2 | 7.7 | 94 | 19 | 350 | 440 |
| AUG | | | | | | | | | | | |
| 19... | 0800 | 8.5 | 306 | 7.4 | 24.0 | 0.70 | 4.2 | 49 | <10 | K1300 | 2100 |

| DATE | HARDNESS TOTAL (MG/L AS CaCO3) | HARDNESS NONCARB WH WAT TOT FLD (MG/L AS CaCO3) | CALCIUM DIS-SOLVED (MG/L AS Ca) | MAGNESIUM, DIS-SOLVED (MG/L AS Mg) | SODIUM, DIS-SOLVED (MG/L AS Na) | SODIUM ADSORPTION RATIO | POTASSIUM, DIS-SOLVED (MG/L AS K) | ALKALINITY WAT WH TOT FET FIELD (MG/L AS CaCO3) | SULFIDE TOTAL (MG/L AS S) | SULFATE DIS-SOLVED (MG/L AS SO4) | CHLORIDE, DIS-SOLVED (MG/L AS Cl) |
|----------|--------------------------------|---|---------------------------------|------------------------------------|---------------------------------|-------------------------|-----------------------------------|---|---------------------------|----------------------------------|-----------------------------------|
| OCT 1992 | | | | | | | | | | | |
| 29... | 180 | 12 | 27 | 16 | 20 | 0.4 | 1.9 | 130 | <0.5 | 17 | 12 |
| DEC | | | | | | | | | | | |
| 11... | -- | -- | -- | -- | -- | -- | -- | 130 | -- | -- | -- |
| FEB 1993 | | | | | | | | | | | |
| 18... | -- | -- | -- | -- | -- | -- | -- | 120 | -- | -- | -- |
| APR | | | | | | | | | | | |
| 20... | 130 | 20 | 34 | 12 | 12 | 0.5 | 2.7 | 140 | <0.5 | 8.3 | 11 |
| JUN | | | | | | | | | | | |
| 04... | -- | -- | -- | -- | -- | -- | -- | 120 | -- | -- | -- |
| AUG | | | | | | | | | | | |
| 19... | 140 | 3 | 36 | 11 | 13 | 0.5 | 2.4 | 100 | -- | 7.4 | 9.8 |

| DATE | FLUORIDE, DIS-SOLVED (MG/L AS F) | SILICA, DIS-SOLVED (MG/L AS SiO2) | SOLIDS, SUM OF CONSTITUENTS, DIS-SOLVED (MG/L) | SOLIDS, DIS-SOLVED (TONS PER DAY) | RESIDUE TOTAL AT 105 DEG. C, SUSPENDED (MG/L) | NITROGEN, NITRATE TOTAL (MG/L AS N) | NITROGEN, NITRITE TOTAL (MG/L AS N) | NITROGEN, NO2+NO3 TOTAL (MG/L AS N) | NITROGEN, AMMONIA TOTAL (MG/L AS N) | NITROGEN, ORGANIC TOTAL (MG/L AS N) |
|----------|----------------------------------|-----------------------------------|--|-----------------------------------|---|-------------------------------------|-------------------------------------|-------------------------------------|-------------------------------------|-------------------------------------|
| OCT 1992 | | | | | | | | | | |
| 29... | 0.20 | 30 | 224 | 5.44 | <1 | 0.920 | 0.010 | 0.930 | 0.020 | 0.48 |
| DEC | | | | | | | | | | |
| 11... | -- | -- | -- | -- | 5 | 0.540 | 0.060 | 0.600 | 0.650 | 0.15 |
| FEB 1993 | | | | | | | | | | |
| 18... | -- | -- | -- | -- | 8 | 0.790 | 0.010 | 0.800 | 0.020 | 0.18 |
| APR | | | | | | | | | | |
| 20... | 0.10 | 29 | 193 | 2.97 | 6 | 0.890 | 0.010 | 0.900 | 0.010 | 0.19 |
| JUN | | | | | | | | | | |
| 04... | -- | -- | -- | -- | 17 | 0.730 | 0.070 | 0.800 | 0.160 | 0.44 |
| AUG | | | | | | | | | | |
| 19... | <0.10 | 32 | 194 | 4.45 | 4 | 0.620 | 0.080 | 0.700 | 0.390 | 0.41 |

K = non-ideal count

WATER-QUALITY DATA, WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993

[illegible]

RIO GRANDE DE ANASCO BASIN

50141500 LAGO GUAYO NEAR CASTANER, PR

LOCATION.--Lat 18°12'46", long 66°50'06", Hydrologic Unit 21010003, at Guayo Dam on Río Guayo, 1.1 mi (1.8 km) southwest of Lago Yahuecas, 2.6 mi (4.2 km) southwest of Lago Prieto, 2.1 mi (3.4 km) north of Castañer, and 6.0 mi (9.6 km) west of Adjuntas.

DRAINAGE AREA.--9.60 mi² (24.86 km²).

ELEVATION RECORDS

PERIOD OF RECORD.--April 1980 to January 1985, June 1989 to current year.

GAGE.--Water-stage recorder. Datum of gage is mean sea level.

REMARKS.--Lago Guayo was completed in 1956. The dam is on Río Guayo and is the largest in the southwestern Puerto Rico project. The maximum storage is 17,400 ac-ft (21.5 hm³) for power and irrigation. The dam is a concrete gravity structure with a total length of 555 ft (169 m), a maximum structural height of 190 ft (58 m), and a maximum width at the base of 145 ft (44 m). The ungated overflow spillway with a crest elevation of 60.00 ft (18.29 m) and a crest length of 220 ft (67 m) was designed to pass a maximum flood of 30,200 ft³/s (855 m³/s) at a reservoir elevation of 70.00 ft (21.34 m). Timber flashboards that were added to increase storage capacity were subsequently removed and their use discontinued. Gage-height and precipitation satellite telemetry at station.

EXTREMES OBSERVED FOR PERIOD OF RECORD.--Maximum elevation, 1462.43 ft (445.75 m), May 27, 1980; minimum elevation recorded, 1415.43 ft (431.42 m), June 2, 1990, but may have been less during period of no gage-height record June 2-5, 1990.

EXTREMES OBSERVED FOR CURRENT YEAR.--Maximum elevation, 1461.18 ft (445.37 m), May 29; minimum elevation recorded 1431.18 ft (436.22 m), Nov. 24.

Capacity Table
(based on data from Puerto Rico Water Resources Authority)

| Elevation, in feet | Contents, in acre-feet | Elevation, in feet | Contents, in acre-feet |
|--------------------|------------------------|--------------------|------------------------|
| 1415 | 3,960 | 1460 | 13,550 |
| 1449 | 10,660 | 1465 | 15,000 |

ELEVATION (FEET NGVD), WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993
DAILY OBSERVATION AT 24:00 VALUES

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|
| 1 | 1455.66 | 1454.54 | 1437.46 | A | 1459.46 | 1451.05 | 1454.05 | 1461.09 | 1459.44 | 1451.67 | 1440.34 | 1439.60 |
| 2 | 1456.18 | 1453.66 | 1438.33 | A | 1459.46 | 1450.32 | 1454.25 | 1460.92 | 1459.63 | 1450.53 | 1439.74 | 1439.87 |
| 3 | 1456.62 | 1452.67 | 1438.65 | A | 1459.73 | 1449.92 | 1454.45 | 1460.42 | 1459.31 | 1448.47 | 1440.06 | 1439.37 |
| 4 | 1457.06 | 1451.62 | 1438.14 | A | 1458.99 | 1449.46 | 1454.64 | 1459.85 | 1458.97 | 1448.05 | 1440.39 | 1440.48 |
| 5 | 1459.81 | 1450.52 | 1437.59 | 1454.55 | 1458.23 | 1449.75 | 1454.78 | 1459.75 | 1458.70 | 1447.65 | 1440.17 | 1441.12 |
| 6 | 1460.25 | 1449.35 | 1436.99 | 1455.03 | 1457.49 | A | 1454.96 | 1460.40 | 1458.64 | 1446.72 | 1440.17 | 1442.17 |
| 7 | 1460.21 | 1448.16 | 1436.38 | 1455.50 | 1456.63 | 1449.11 | 1454.97 | 1460.24 | 1458.39 | 1446.36 | 1440.51 | 1442.84 |
| 8 | 1460.70 | 1446.92 | 1435.75 | 1455.88 | 1455.34 | 1449.46 | 1455.19 | 1460.32 | 1458.42 | 1445.59 | 1439.64 | 1443.02 |
| 9 | 1460.16 | 1445.58 | 1435.06 | 1456.29 | 1455.51 | 1449.71 | 1455.46 | 1460.38 | 1458.80 | A | 1438.33 | 1443.42 |
| 10 | 1460.19 | 1444.20 | 1434.37 | 1456.71 | 1455.66 | 1449.99 | 1455.70 | 1459.96 | 1459.49 | A | 1436.83 | 1443.04 |
| 11 | 1459.97 | 1442.84 | 1433.65 | 1457.07 | 1455.00 | 1450.09 | 1456.31 | 1459.80 | 1458.87 | A | 1435.22 | 1442.69 |
| 12 | 1459.55 | 1441.56 | 1432.91 | 1457.51 | 1453.91 | 1449.47 | 1457.36 | 1459.85 | 1458.17 | A | 1433.18 | 1443.50 |
| 13 | 1459.41 | 1441.75 | A | 1457.88 | 1453.10 | 1449.72 | 1457.80 | 1459.35 | 1458.15 | A | A | 1444.10 |
| 14 | 1460.37 | 1441.11 | A | 1458.25 | 1453.43 | 1449.96 | 1461.13 | 1459.34 | 1457.17 | A | A | 1444.42 |
| 15 | 1459.62 | 1440.39 | A | 1458.60 | 1452.35 | 1449.47 | 1460.37 | 1458.70 | 1456.60 | A | A | 1444.22 |
| 16 | 1459.88 | 1439.32 | A | 1458.93 | 1451.41 | 1449.25 | 1459.90 | 1458.37 | 1455.83 | A | A | 1444.22 |
| 17 | 1459.61 | 1437.99 | A | 1459.32 | 1451.81 | 1449.48 | 1460.01 | 1457.63 | 1455.69 | 1441.55 | A | 1444.09 |
| 18 | 1459.44 | 1436.96 | A | 1459.64 | 1452.14 | 1449.72 | 1458.57 | 1456.77 | 1456.24 | 1441.83 | A | 1444.25 |
| 19 | 1459.15 | 1435.84 | A | 1459.93 | 1452.24 | 1449.95 | 1458.48 | 1456.05 | 1458.58 | 1440.41 | A | 1446.33 |
| 20 | 1458.74 | 1434.63 | A | 1460.14 | 1452.04 | 1450.20 | 1458.38 | 1455.60 | 1459.47 | 1438.50 | A | 1447.16 |
| 21 | 1458.12 | 1433.40 | A | 1460.18 | 1452.01 | 1450.42 | 1457.63 | 1455.91 | 1458.92 | 1437.97 | A | 1447.67 |
| 22 | 1457.49 | 1432.46 | A | A | 1452.21 | 1450.64 | 1456.83 | 1454.64 | 1458.25 | 1437.63 | A | 1447.87 |
| 23 | 1457.82 | 1431.29 | A | A | 1452.24 | 1450.83 | 1456.30 | 1453.42 | 1458.13 | 1438.10 | A | 1446.77 |
| 24 | 1458.87 | A | A | A | 1452.17 | 1451.07 | 1456.30 | 1453.39 | 1458.00 | 1438.61 | 1432.72 | 1447.40 |
| 25 | 1459.11 | A | A | A | 1451.71 | 1451.30 | 1456.62 | 1453.71 | 1457.70 | 1439.04 | 1433.14 | 1446.60 |
| 26 | 1458.59 | A | A | A | A | 1451.55 | 1456.87 | 1456.87 | 1456.84 | 1439.47 | 1433.56 | 1447.21 |
| 27 | 1457.88 | A | A | A | 1451.27 | 1452.63 | 1456.26 | 1460.15 | 1456.02 | 1439.91 | 1434.63 | 1450.04 |
| 28 | 1456.98 | A | A | A | 1451.29 | 1453.17 | 1456.12 | 1460.66 | 1455.34 | 1439.86 | 1436.61 | 1451.51 |
| 29 | 1456.27 | A | A | 1460.46 | --- | 1453.45 | 1457.87 | 1460.83 | 1453.89 | 1440.21 | 1437.71 | 1451.84 |
| 30 | 1455.75 | A | A | 1460.06 | --- | 1453.69 | 1459.99 | 1460.67 | 1452.19 | 1440.58 | 1438.38 | 1452.40 |
| 31 | 1455.24 | --- | A | 1460.08 | --- | 1453.88 | --- | 1460.16 | --- | 1439.99 | 1438.92 | --- |
| MEAN | 1458.54 | --- | --- | --- | --- | --- | 1456.92 | 1458.55 | 1457.66 | --- | --- | 1444.97 |
| MAX | 1460.70 | --- | --- | --- | --- | --- | 1461.13 | 1461.09 | 1459.63 | --- | --- | 1452.40 |
| MIN | 1455.24 | --- | --- | --- | --- | --- | 1454.05 | 1453.39 | 1452.19 | --- | --- | 1439.37 |

A No gage-height record

RIO GRANDE DE AÑASCO BASIN

50143000 RIO GRANDE DE AÑASCO NEAR LARES, PR

WATER-QUALITY RECORDS

LOCATION.--Lat 18°15'26", long 66°55'00", at bridge on Highway 124, 0.7 mi (1.1 km) downstream from confluence of Río Blanco and Río Prieto, and 3.7 mi (6.0 km) southwest of Lares plaza.

DRAINAGE AREA.--26.3 mi² (68.1 km²) this does not include 36.2 mi² (93.8 km²) which contributes only during high floods, and 3.5 mi² (9.1 km²) which contributes only part of its storm runoff.

PERIOD OF RECORD.--Water years 1959-68, 1970 to current year.

WATER-QUALITY DATA, WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993

| DATE | TIME | DIS- CHARGE, INST. CUBIC FEET PER SECOND | SPE- CIFIC CON- DUCT- ANCE (US/CM) | PH WATER WHOLE FIELD (STAND- ARD UNITS) | TEMPER- ATURE WATER (DEG C) | TUR- BID- ITY (NTU) | OXYGEN, DIS- SOLVED (MG/L) | OXYGEN, DIS- SOLVED (PER- CENT SATUR- ATION) | OXYGEN DEMAND, CHEM- ICAL (HIGH LEVEL) (MG/L) | COLI- FORM, FECAL, 0.45 UM-MP (COLS./ 100 ML) | STREP- TOCOCCI FECAL, (COLS. PER 100 ML) |
|----------|------|--|---|---|--------------------------------------|------------------------------|-------------------------------------|--|---|---|---|
| OCT 1992 | | | | | | | | | | | |
| 30... | 0850 | 171 | 234 | 6.9 | 23.0 | 28 | 4.1 | 48 | <10 | 3100 | 6100 |
| DEC | | | | | | | | | | | |
| 16... | 0920 | 41 | 292 | 7.6 | 21.0 | 12 | 4.8 | 54 | 19 | K770 | 460 |
| FEB 1993 | | | | | | | | | | | |
| 23... | 0930 | 20 | 321 | 8.2 | 21.5 | 1.1 | 6.2 | 70 | 51 | 260 | 73 |
| APR | | | | | | | | | | | |
| 27... | 1050 | 36 | 213 | 7.8 | 24.5 | 3.2 | 8.8 | 107 | 29 | 270 | K130 |
| JUN | | | | | | | | | | | |
| 15... | 0850 | 54 | 303 | 7.8 | 25.5 | 0.50 | 8.6 | 102 | 16 | 310 | 820 |
| SEP | | | | | | | | | | | |
| 09... | 1400 | 45 | 285 | 7.3 | 27.7 | 15 | 8.2 | 78 | <10 | 3100 | 210 |

| DATE | HARD- NESS TOTAL (MG/L AS CACO3) | HARD- NESS NONCARB WH WAT TOT FLD MG/L AS CACO3 | CALCIUM DIS- SOLVED (MG/L AS CA) | MAGNE- SIUM, DIS- SOLVED (MG/L AS MG) | SODIUM, DIS- SOLVED (MG/L AS NA) | SODIUM AD- SORP- TION RATIO | POTAS- SIUM, DIS- SOLVED (MG/L AS K) | ALKA- LINITY WAT WH TOT FET FIELD MG/L AS CACO3 | SULFIDE TOTAL (MG/L AS S) | SULFATE DIS- SOLVED (MG/L AS SO4) | CHLO- RIDE, DIS- SOLVED (MG/L AS CL) |
|----------|---|---|--|--|--|---|---|---|------------------------------------|---|---|
| OCT 1992 | | | | | | | | | | | |
| 30... | 82 | 2 | 18 | 6.0 | 9.1 | 0.5 | 2.5 | 92 | <0.5 | 10 | 7.3 |
| DEC | | | | | | | | | | | |
| 16... | -- | -- | -- | -- | -- | -- | -- | 120 | -- | -- | -- |
| FEB 1993 | | | | | | | | | | | |
| 23... | -- | -- | -- | -- | -- | -- | -- | 130 | -- | -- | -- |
| APR | | | | | | | | | | | |
| 27... | 120 | 8 | 33 | 9.3 | 11 | 0.4 | 2.1 | 110 | 0.6 | 22 | 11 |
| JUN | | | | | | | | | | | |
| 15... | -- | -- | -- | -- | -- | -- | -- | 110 | -- | -- | -- |
| SEP | | | | | | | | | | | |
| 09... | 70 | 1 | 27 | 8.2 | 13 | 0.6 | 1.8 | 93 | -- | 18 | 12 |

| DATE | FLUO- RIDE, DIS- SOLVED (MG/L AS F) | SILICA, DIS- SOLVED (MG/L AS SIO2) | SOLIDS, SUM OF CONSTI- TUENTS, DIS- SOLVED (MG/L) | SOLIDS, DIS- SOLVED (TONS PER DAY) | RESIDUE TOTAL AT 105 DEG. C, SUS- PENDED (MG/L) | NITRO- GEN, NITRATE TOTAL (MG/L AS N) | NITRO- GEN, NITRITE TOTAL (MG/L AS N) | NITRO- GEN, NO2+NO3 TOTAL (MG/L AS N) | NITRO- GEN, AMMONIA TOTAL (MG/L AS N) | NITRO- GEN, ORGANIC TOTAL (MG/L AS N) |
|----------|--|---|---|---|---|--|--|--|--|--|
| OCT 1992 | | | | | | | | | | |
| 30... | <0.10 | 28 | 131 | 60.5 | <1 | 1.27 | 0.030 | 1.30 | 0.030 | 0.17 |
| DEC | | | | | | | | | | |
| 16... | -- | -- | -- | -- | 14 | 1.29 | 0.010 | 1.30 | 0.050 | 0.55 |
| FEB 1993 | | | | | | | | | | |
| 23... | -- | -- | -- | -- | 2 | 1.13 | 0.070 | 1.20 | 0.030 | 0.27 |
| APR | | | | | | | | | | |
| 27... | 0.10 | 30 | 184 | 17.9 | <1 | 1.65 | 0.050 | 1.70 | 0.030 | 0.37 |
| JUN | | | | | | | | | | |
| 15... | -- | -- | -- | -- | 7 | 1.12 | 0.380 | 1.50 | 0.260 | 0.44 |
| SEP | | | | | | | | | | |
| 09... | 0.20 | 22 | 163 | 19.8 | 3 | 2.34 | 0.360 | 2.70 | 0.180 | 1.0 |

K = non-ideal count

RIO GRANDE DE AÑASCO BASIN

50143000 RIO GRANDE DE AÑASCO NEAR LARES, PR--Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993

| DATE | NITRO- GEN, AM- MONIA + ORGANIC TOTAL (MG/L AS N) | NITRO- GEN, TOTAL (MG/L AS N) | NITRO- GEN, TOTAL (MG/L AS NO3) | PHOS- PHORUS TOTAL (MG/L AS P) | ARSENIC TOTAL (UG/L AS AS) | BARIUM, TOTAL RECOV- ERABLE (UG/L AS BA) | BORON, TOTAL RECOV- ERABLE (UG/L AS B) | CADMIUM TOTAL RECOV- ERABLE (UG/L AS CD) | CHRO- MIUM, TOTAL RECOV- ERABLE (UG/L AS CR) | COPPER, TOTAL RECOV- ERABLE (UG/L AS CU) |
|-----------|---|---|---|--|-------------------------------------|---|---|---|--|---|
| OCT 1992 | | | | | | | | | | |
| 30... | 0.20 | 1.5 | 6.6 | 0.070 | <1 | <100 | 10 | <1 | <1 | <10 |
| DEC 16... | 0.60 | 1.6 | 7.1 | 0.040 | -- | -- | -- | -- | -- | -- |
| FEB 1993 | | | | | | | | | | |
| 23... | 0.30 | 1.6 | 8.0 | 0.050 | -- | -- | -- | -- | -- | -- |
| APR 27... | 0.40 | 2.4 | 11 | 0.050 | <1 | <100 | 30 | <1 | <1 | <10 |
| JUN 15... | 0.70 | 3.6 | 17 | 0.040 | -- | -- | -- | -- | -- | -- |
| SEP 09... | 1.2 | 3.9 | 16 | 1.10 | -- | -- | -- | -- | -- | -- |

[illegible]

RIO GRANDE DE AÑASCO BASIN

50144000 RIO GRANDE DE AÑASCO NEAR SAN SEBASTIAN, PR

LOCATION.--Lat 18°17'05", long 67°03'05", Hydrologic Unit 21010003, on right bank, at downstream side of bridge on Highway 108, 0.4 mi (0.6 km) downstream from Quebrada La Zumbadora, 4.4 mi (7.1 km) northwest of Las Marías, 5.4 mi (8.7 km) southwest of San Sebastián.

DRAINAGE AREA.--94.3 mi² (244.2 km²), does not include 36.2 mi² (93.8 km²) which contributes only during high floods, and 3.5 mi² (9.1 km²) which contributes only part of its storm runoff.

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--March 1963 to current year.

GAGE.--Water-stage recorder. Datum of gage is 103.72 ft (31.614 m) above mean sea level (Puerto Rico Department of Public Works bench mark). Previous to Oct. 30, 1975, at site 600 ft (180 m) upstream at same datum.

REMARKS.--Records fair except those for estimated daily discharges, which are poor. Transbasin diversion (except during floods) to Río Yauco basin for hydroelectric power and irrigation above Lago Guayo, Yahuecas, and Prieto, combined useable storage 17,300 acre-ft (21.3 hm³). Limited storm runoff is contributed to basin by 3.5 mi² (9.1 km²) above Río Toro Diversion dam. Gage-height and precipitation satellite telemetry at station.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993
DAILY MEAN VALUES

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|-------|-------|-------|-------|-------|------|------|-------|-------|-------|-------|-------|-------|
| 1 | 2440 | 942 | 333 | 160 | 668 | 105 | 106 | 351 | 723 | 254 | 125 | 862 |
| 2 | 1490 | 708 | 239 | 150 | 212 | 118 | 86 | 1480 | 506 | 216 | 121 | 710 |
| 3 | 864 | 525 | 332 | 145 | 179 | 107 | 96 | 2420 | 423 | 199 | 117 | 491 |
| 4 | 445 | 461 | 232 | 143 | 158 | 104 | 101 | 1230 | 378 | 185 | 113 | 456 |
| 5 | 595 | 432 | 245 | 140 | 147 | 105 | 79 | 775 | 345 | 177 | 112 | 609 |
| 6 | 1390 | 393 | 258 | 139 | 139 | 103 | 77 | 1540 | 385 | 180 | 125 | 372 |
| 7 | 1120 | 368 | 201 | 137 | 135 | 102 | 76 | 1160 | 319 | 381 | 125 | 522 |
| 8 | 1630 | 346 | 191 | 133 | 128 | 100 | 73 | 558 | 386 | 390 | 114 | 730 |
| 9 | 1490 | 328 | 186 | 131 | 126 | 121 | 92 | 716 | 585 | 212 | 305 | 616 |
| 10 | 4570 | 313 | 181 | 128 | 125 | 108 | 71 | 571 | 446 | 186 | 199 | 982 |
| 11 | 3880 | 300 | 177 | 127 | 120 | 101 | 179 | 298 | 334 | 170 | e200 | 417 |
| 12 | 1840 | 292 | 174 | 125 | 121 | 107 | 686 | 247 | 523 | 169 | e120 | 313 |
| 13 | 828 | 328 | 211 | 124 | 124 | 94 | 516 | 229 | 548 | 159 | e115 | 323 |
| 14 | 908 | 883 | 356 | 122 | 120 | 88 | 510 | 213 | 279 | 170 | e110 | 272 |
| 15 | 2010 | 721 | 377 | 127 | 121 | 92 | 1210 | 209 | 239 | 195 | e105 | 251 |
| 16 | 1240 | 550 | 209 | 123 | 118 | 88 | 347 | 340 | 245 | 184 | e350 | 261 |
| 17 | 2100 | 370 | 188 | 122 | 167 | 87 | 213 | 236 | 226 | 149 | e1050 | 273 |
| 18 | 3180 | 582 | 178 | 120 | 129 | 84 | 364 | 193 | 222 | 144 | e600 | 1320 |
| 19 | 1710 | 596 | 178 | 118 | 121 | 80 | 238 | 179 | 319 | 142 | e320 | 1580 |
| 20 | 907 | 399 | 170 | 118 | 118 | 87 | 250 | 190 | 323 | 185 | e190 | 714 |
| 21 | 647 | 393 | 165 | 139 | 120 | 105 | 308 | 177 | 234 | 219 | e170 | 492 |
| 22 | 643 | 348 | 166 | 163 | 113 | 80 | 241 | 208 | 212 | 436 | e155 | 523 |
| 23 | 1060 | 454 | 161 | 163 | 112 | 75 | 143 | 275 | 201 | 177 | e150 | 459 |
| 24 | 1510 | 313 | 157 | 161 | 115 | 75 | 468 | 256 | 193 | 144 | 140 | 365 |
| 25 | 1210 | 287 | 155 | 162 | 151 | 86 | 318 | 190 | 186 | 148 | 153 | 298 |
| 26 | 744 | 270 | 151 | 164 | 115 | 83 | 162 | 1120 | 179 | 333 | 185 | 325 |
| 27 | 573 | 269 | 168 | 166 | 111 | 291 | 134 | 2040 | 176 | 225 | 130 | 527 |
| 28 | 491 | 271 | 152 | 165 | 111 | 385 | 148 | 2040 | 478 | 148 | 361 | 893 |
| 29 | 622 | 390 | 379 | 1160 | --- | 121 | 464 | 1530 | 1050 | 136 | 528 | 570 |
| 30 | 2090 | 427 | 344 | 422 | --- | 119 | 336 | 3840 | 559 | 129 | 853 | 386 |
| 31 | 1260 | --- | 177 | 361 | --- | 202 | --- | 1850 | --- | 125 | 466 | --- |
| TOTAL | 45487 | 13259 | 6791 | 5858 | 4224 | 3603 | 8092 | 26661 | 11222 | 6267 | 7907 | 16912 |
| MEAN | 1467 | 442 | 219 | 189 | 151 | 116 | 270 | 860 | 374 | 202 | 255 | 564 |
| MAX | 4570 | 942 | 379 | 1160 | 668 | 385 | 1210 | 3840 | 1050 | 436 | 1050 | 1580 |
| MIN | 445 | 269 | 151 | 118 | 111 | 75 | 71 | 177 | 176 | 125 | 105 | 251 |
| AC-FT | 90220 | 26300 | 13470 | 11620 | 8380 | 7150 | 16050 | 52880 | 22260 | 12430 | 15680 | 33540 |
| CFSM | 15.6 | 4.69 | 2.32 | 2.00 | 1.60 | 1.23 | 2.86 | 9.12 | 3.97 | 2.14 | 2.70 | 5.98 |
| IN. | 17.94 | 5.23 | 2.68 | 2.31 | 1.67 | 1.42 | 3.19 | 10.52 | 4.43 | 2.47 | 3.12 | 6.67 |

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1963 - 1993, BY WATER YEAR (WY)

| | MEAN | 674 | 449 | 223 | 140 | 106 | 98.7 | 148 | 373 | 287 | 279 | 363 | 609 |
|------|------|------|------|------|------|------|------|------|------|------|------|------|-----|
| MAX | 1467 | 746 | 482 | 215 | 161 | 271 | 313 | 1084 | 815 | 657 | 936 | 1422 | |
| (WY) | 1993 | 1982 | 1966 | 1970 | 1981 | 1972 | 1971 | 1986 | 1979 | 1979 | 1979 | 1984 | |
| MIN | 344 | 199 | 103 | 83.6 | 62.3 | 54.4 | 49.3 | 63.7 | 71.2 | 111 | 152 | 206 | |
| (WY) | 1983 | 1992 | 1992 | 1965 | 1992 | 1965 | 1968 | 1967 | 1977 | 1990 | 1967 | 1983 | |

SUMMARY STATISTICS

FOR 1992 CALENDAR YEAR

FOR 1993 WATER YEAR

WATER YEARS 1963 - 1993

| | | | |
|--------------------------|--------|--------|--------|
| ANNUAL TOTAL | 136452 | 156283 | |
| ANNUAL MEAN | 373 | 428 | 312 |
| HIGHEST ANNUAL MEAN | | | 460 |
| LOWEST ANNUAL MEAN | | | 189 |
| HIGHEST DAILY MEAN | 4570 | Oct 10 | 19400 |
| LOWEST DAILY MEAN | 41 | Mar 24 | 32 |
| ANNUAL SEVEN-DAY MINIMUM | 45 | Mar 20 | 35 |
| INSTANTANEOUS PEAK FLOW | | | 140000 |
| INSTANTANEOUS PEAK STAGE | | | 33.90 |
| INSTANTANEOUS LOW FLOW | | | 31 |
| ANNUAL RUNOFF (AC-FT) | 270700 | 310000 | 226200 |
| ANNUAL RUNOFF (CFSM) | 3.95 | 4.54 | 3.31 |
| ANNUAL RUNOFF (INCHES) | 53.83 | 61.65 | 44.99 |
| 10 PERCENT EXCEEDS | 867 | 1010 | 660 |
| 50 PERCENT EXCEEDS | 170 | 222 | 188 |
| 90 PERCENT EXCEEDS | 58 | 111 | 74 |

e Estimated

RIO GRANDE DE AÑASCO BASIN

50144000 RIO GRANDE DE AÑASCO NEAR SAN SEBASTIAN, PR--Continued
(National stream-quality accounting network station)

WATER-QUALITY RECORDS

PERIOD OF RECORD.--Water years 1963 to current year.

WATER-QUALITY DATA, WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993

WATER-QUALITY DATA

| DATE | TIME | DIS- CHARGE, INST. CUBIC FEET PER SECOND | SPE- CIFIC CON- DUCT- ANCE (US/CM) | PH WATER WHOLE FIELD (STAND- ARD UNITS) | TEMPER- ATURE WATER (DEG C) | TUR- BID- ITY (NTU) | OXYGEN, DIS- SOLVED (MG/L) | OXYGEN, DIS- SOLVED (PER- CENT SATUR- ATION) | COLI- FORM, FECAL, 0.7 UM-MF (COLS./ 100 ML) | STREP- TOCOCCI FECAL, KF AGAR (COLS. PER 100 ML) | HARD- NESS TOTAL (MG/L AS CACO3) |
|----------|------|--|---|---|--------------------------------------|------------------------------|-------------------------------------|--|--|--|---|
| OCT 1992 | | | | | | | | | | | |
| 29... | 0950 | 456 | 230 | 6.7 | 27.0 | 7.8 | 7.4 | 83 | 310 | 670 | 100 |
| FEB 1993 | | | | | | | | | | | |
| 02... | 0955 | 214 | 226 | 7.9 | 22.5 | 27 | 6.7 | 58 | 2800 | 2300 | 93 |
| APR | | | | | | | | | | | |
| 29... | 0950 | 137 | 245 | 7.0 | 24.5 | 15 | 8.0 | 92 | 1000 | 340 | 100 |
| JUL | | | | | | | | | | | |
| 22... | 1035 | 132 | 228 | 7.4 | 28.0 | 4.7 | 4.2 | 41 | 2500 | 170 | 100 |

| DATE | HARD- NESS NONCARB WH WAT TOT FLD MG/L AS CACO3 | CALCIUM DIS- SOLVED (MG/L AS CA) | MAGNE- SIUM, DIS- SOLVED (MG/L AS MG) | SODIUM, DIS- SOLVED (MG/L AS NA) | SODIUM AD- SORP- TION RATIO | POTAS- SIUM, DIS- SOLVED (MG/L AS K) | ALKA- LINITY WAT WH TOT FET MG/L AS CACO3 | SULFATE DIS- SOLVED (MG/L AS SO4) | CHLO- RIDE, DIS- SOLVED (MG/L AS CL) | FLUO- RIDE, DIS- SOLVED (MG/L AS F) | SILICA, DIS- SOLVED (MG/L AS SiO2) |
|----------|---|--|--|--|---|---|--|---|---|--|---|
| OCT 1992 | | | | | | | | | | | |
| 29... | 6 | 26 | 8.6 | 9.0 | 0.4 | 1.8 | 100 | 8.7 | 7.4 | <0.10 | 30 |
| FEB 1993 | | | | | | | | | | | |
| 02... | 3 | 24 | 8.1 | 8.0 | 0.4 | 2.1 | 97 | 8.8 | 7.4 | 0.10 | 25 |
| APR | | | | | | | | | | | |
| 29... | 7 | 27 | 8.7 | 9.8 | 0.4 | 2.1 | 100 | 12 | 9.2 | <0.10 | 28 |
| JUL | | | | | | | | | | | |
| 22... | 12 | 26 | 8.7 | 9.8 | 0.4 | 2.0 | 100 | 10 | 7.5 | 0.10 | 28 |

| DATE | SOLIDS, RESIDUE AT 180 DEG. C DIS- SOLVED (MG/L) | SOLIDS, SUM OF CONSTITU- ENTS, DIS- SOLVED (MG/L) | SOLIDS, DIS- SOLVED (TONS PER DAY) | NITRO- GEN, NO2+NO3 DIS- SOLVED (MG/L AS N) | NITRO- GEN, AMMONIA DIS- SOLVED (MG/L AS N) | NITRO- GEN, AMMONIA DIS- SOLVED (MG/L AS NH4) | NITRO- GEN,AM- MONIA + ORGANIC TOTAL (MG/L AS N) | PHOS- PHORUS TOTAL (MG/L AS P) | PHOS- PHORUS DIS- SOLVED (MG/L AS P) | PHOS- PHORUS ORTHO, DIS- SOLVED (MG/L AS P) | PHOS- PHATE, ORTHO, DIS- SOLVED (MG/L AS PO4) |
|----------|--|---|---|---|---|---|--|--|---|---|---|
| OCT 1992 | | | | | | | | | | | |
| 29... | 140 | 155 | 191 | 1.10 | 0.010 | 0.01 | <0.20 | 0.040 | 0.030 | 0.030 | 0.09 |
| FEB 1993 | | | | | | | | | | | |
| 02... | 135 | 145 | 84 | 1.30 | 0.040 | 0.05 | 0.20 | 0.070 | 0.060 | 0.040 | 0.12 |
| APR | | | | | | | | | | | |
| 29... | 164 | 161 | 60 | 0.750 | 0.040 | 0.05 | 0.20 | 0.030 | 0.060 | 0.020 | 0.06 |
| JUL | | | | | | | | | | | |
| 22... | 151 | 153 | 55 | 0.670 | 0.090 | 0.12 | 0.70 | 0.030 | 0.030 | 0.020 | 0.06 |

| DATE | ALUM- INUM, DIS- SOLVED (UG/L AS AL) | ARSENIC DIS- SOLVED (UG/L AS AS) | BARIUM, DIS- SOLVED (UG/L AS BA) | BERYL- LIUM, DIS- SOLVED (UG/L AS BE) | CADMIUM, DIS- SOLVED (UG/L AS CD) | CHRO- MIUM, DIS- SOLVED (UG/L AS CR) | COBALT, DIS- SOLVED (UG/L AS CO) | COPPER, DIS- SOLVED (UG/L AS CU) | IRON, DIS- SOLVED (UG/L AS FE) | LEAD, DIS- SOLVED (UG/L AS PB) | LITHIUM DIS- SOLVED (UG/L AS LI) |
|----------|---|--|--|--|---|---|--|--|--|--|--|
| OCT 1992 | | | | | | | | | | | |
| 29... | 40 | <1 | 31 | <0.5 | <1 | <1 | <3 | 1 | 17 | <1 | <4 |
| FEB 1993 | | | | | | | | | | | |
| 02... | 50 | <1 | 32 | <0.5 | <1 | <1 | <3 | 8 | 43 | <1 | <4 |
| APR | | | | | | | | | | | |
| 29... | 60 | <1 | 33 | <0.5 | <1 | <1 | <3 | 3 | 22 | 5 | <4 |
| JUL | | | | | | | | | | | |
| 22... | 60 | <1 | 31 | <0.5 | <1 | <1 | <3 | 2 | 33 | 2 | <4 |

K = non-ideal count

RIO GRANDE DE AÑASCO BASIN

50144000 RIO GRANDE DE AÑASCO NEAR SAN SEBASTIAN, PR--CONTINUED

(NATIONAL STREAM-QUALITY ACCOUNTING NETWORK STATION)

WATER-QUALITY DATA, WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993

| DATE | MANGA- NESE, DIS- SOLVED (UG/L AS MN) | MERCURY DIS- SOLVED (UG/L AS HG) | MOLYB- DENUM, DIS- SOLVED (UG/L AS MO) | NICKEL, DIS- SOLVED (UG/L AS NI) | SELE- NIUM, DIS- SOLVED (UG/L AS SE) | SILVER, DIS- SOLVED (UG/L AS AG) | STRON- TIUM, DIS- SOLVED (UG/L AS SR) | VANA- DIUM, DIS- SOLVED (UG/L AS V) | ZINC, DIS- SOLVED (UG/L AS ZN) |
|----------|--|--|---|--|---|--|--|--|--|
| OCT 1992 | | | | | | | | | |
| 29... | 16 | <0.1 | <10 | <1 | <1 | <1.0 | 140 | <6 | 9 |
| FEB 1993 | | | | | | | | | |
| 02... | 15 | <0.1 | <10 | 1 | <1 | <1.0 | 120 | <6 | 3 |
| APR | | | | | | | | | |
| 29... | 15 | <0.1 | <10 | 1 | <1 | <1.0 | 140 | <6 | <3 |
| JUL | | | | | | | | | |
| 22... | 13 | <0.1 | <10 | <1 | <1 | <1.0 | 130 | <6 | 6 |

PARTICLE-SIZE DISTRIBUTION OF SUSPENDED SEDIMENT

| DATE | TIME | STREAM- FLOW, INSTAN- TANEOUS (CFS) | SEDI- MENT, SUS- PENDE (MG/L) | SEDI- MENT, DIS- CHARGE, SUS- PENDE (T/DAY) | SED. SUSP. SIEVE DIAM. PERCENT FINER THAN .062 MM |
|----------|------|---|---|---|--|
| OCT 1992 | | | | | |
| 29... | 0950 | 456 | 22.6 | 27.8 | 88 |
| FEB 1993 | | | | | |
| 02... | 0955 | 214 | 57.8 | 33.3 | 86 |
| APR | | | | | |
| 29... | 0950 | 137 | 43.1 | 15.9 | 95 |
| JUL | | | | | |
| 22... | 1035 | 132 | 37.4 | 13.3 | 94 |

RIO GRANDE DE AÑASCO BASIN

50146000 RIO GRANDE DE AÑASCO NEAR AÑASCO, PR

WATER-QUALITY RECORDS

LOCATION.--Lat 18°16'00", long 67°08'05", at bridge on Highway 430, 0.2 mi (0.3 km) south of Highway 109 at El Espino and 1.4 mi (2.3 km) east-southeast from Añasco plaza.

DRAINAGE AREA.--139 mi² (360 km²) this does not include 39.7 mi² (102.8 km²), flow is diverted to south coast.

PERIOD OF RECORD.--Water years 1979 to current year.

WATER-QUALITY DATA, WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993

| DATE | TIME | DIS-CHARGE, INST. CUBIC FEET PER SECOND | SPE-CIFIC CON-DUCT-ANCE (US/CM) | PH WATER WHOLE FIELD (STAND-ARD UNITS) | TEMPER-ATURE WATER (DEG C) | TUR-BID-ITY (NTU) | OXYGEN, DIS-SOLVED (MG/L) | OXYGEN, DIS-SOLVED (PER-CENT SATUR-ATION) | OXYGEN DEMAND, CHEM-ICAL (HIGH LEVEL) (MG/L) | COLI-FORM, FECAL, 0.45 UM-MF (COLS./100 ML) | STREP-TOCOCCI, FECAL, (COLS. PER 100 ML) |
|-----------|------|---|---------------------------------|--|----------------------------|-------------------|---------------------------|---|--|---|--|
| OCT 1992 | | | | | | | | | | | |
| 28... | 0845 | E1000 | 225 | 7.1 | 25.0 | 42 | 5.0 | 59 | <10 | 2800 | K1500 |
| DEC 17... | 0830 | E350 | 249 | 7.2 | 22.0 | 11 | 4.0 | 45 | 12 | 590 | 290 |
| FEB 1993 | | | | | | | | | | | |
| 24... | 0915 | 130 | 255 | 7.2 | 24.0 | 9.0 | 5.2 | 60 | <10 | 82 | 230 |
| APR 28... | 1050 | 194 | 248 | 7.7 | 25.5 | 14 | 7.7 | 92 | 11 | K1400 | 430 |
| JUN 16... | 0840 | 300 | 235 | 7.1 | 26.0 | 22 | 8.5 | 103 | 10 | K1200 | K200000 |
| SEP 09... | 0915 | E350 | 151 | 6.9 | 23.1 | 38 | 8.7 | 99 | 24 | 220 | 260 |

| DATE | HARD-NESS TOTAL (MG/L AS CaCO3) | CALCIUM DIS-SOLVED (MG/L AS Ca) | MAGNE-SIUM, DIS-SOLVED (MG/L AS Mg) | SODIUM, DIS-SOLVED (MG/L AS Na) | SODIUM AD-SORP-TION RATIO | POTAS-SIUM, DIS-SOLVED (MG/L AS K) | ALKA-LINITY WAT WH TOT FET FIELD (MG/L AS CaCO3) | SULFIDE TOTAL (MG/L AS S) | SULFATE DIS-SOLVED (MG/L AS SO4) | CHLO-RIDE, DIS-SOLVED (MG/L AS Cl) |
|-----------|---------------------------------|---------------------------------|-------------------------------------|---------------------------------|---------------------------|------------------------------------|--|---------------------------|----------------------------------|------------------------------------|
| OCT 1992 | | | | | | | | | | |
| 28... | 250 | 72 | 7.2 | 15 | 0.5 | 1.1 | 85 | <0.5 | 9.4 | 26 |
| DEC 17... | -- | -- | -- | -- | -- | -- | 110 | -- | -- | -- |
| FEB 1993 | | | | | | | | | | |
| 24... | -- | -- | -- | -- | -- | -- | 110 | -- | -- | -- |
| APR 28... | 150 | 54 | 3.6 | 5.9 | 0.2 | 1.8 | 98 | <0.5 | 8.7 | 9.1 |
| JUN 16... | -- | -- | -- | -- | -- | -- | 80 | -- | -- | -- |
| SEP 09... | 210 | 74 | 6.6 | 11 | 0.3 | 2.2 | 59 | -- | 6.3 | 18 |

| DATE | FLUO-RIDE, DIS-SOLVED (MG/L AS F) | SILICA, DIS-SOLVED (MG/L AS SiO2) | SOLIDS, SUM OF CONSTI-TUENTS, DIS-SOLVED (MG/L) | SOLIDS, DIS-SOLVED (TONS PER DAY) | RESIDUE TOTAL AT 105 DEG. C, SUS-PENDED (MG/L) | NITRO-GEN, NITRATE TOTAL (MG/L AS N) | NITRO-GEN, NITRITE TOTAL (MG/L AS N) | NITRO-GEN, NO2+NO3 TOTAL (MG/L AS N) | NITRO-GEN, AMMONIA TOTAL (MG/L AS N) | NITRO-GEN, ORGANIC TOTAL (MG/L AS N) |
|-----------|-----------------------------------|-----------------------------------|---|-----------------------------------|--|--------------------------------------|--------------------------------------|--------------------------------------|--------------------------------------|--------------------------------------|
| OCT 1992 | | | | | | | | | | |
| 28... | <0.10 | 6.6 | 253 | -- | <1 | 0.720 | 0.010 | 0.730 | 0.020 | 0.18 |
| DEC 17... | -- | -- | -- | -- | 6 | 1.49 | 0.010 | 1.50 | 0.220 | 0.68 |
| FEB 1993 | | | | | | | | | | |
| 24... | -- | -- | -- | -- | <1 | 2.29 | 0.010 | 2.30 | 0.010 | 0.19 |
| APR 28... | 0.10 | 4.2 | 171 | 90 | 7 | 2.49 | 0.010 | 2.50 | 0.030 | 0.27 |
| JUN 16... | -- | -- | -- | -- | 20 | 1.79 | 0.010 | 1.80 | 0.010 | 0.19 |
| SEP 09... | 0.30 | 6.7 | 227 | -- | 5 | 0.09 | 0.010 | 0.10 | 0.020 | 1.8 |

K = non-ideal count

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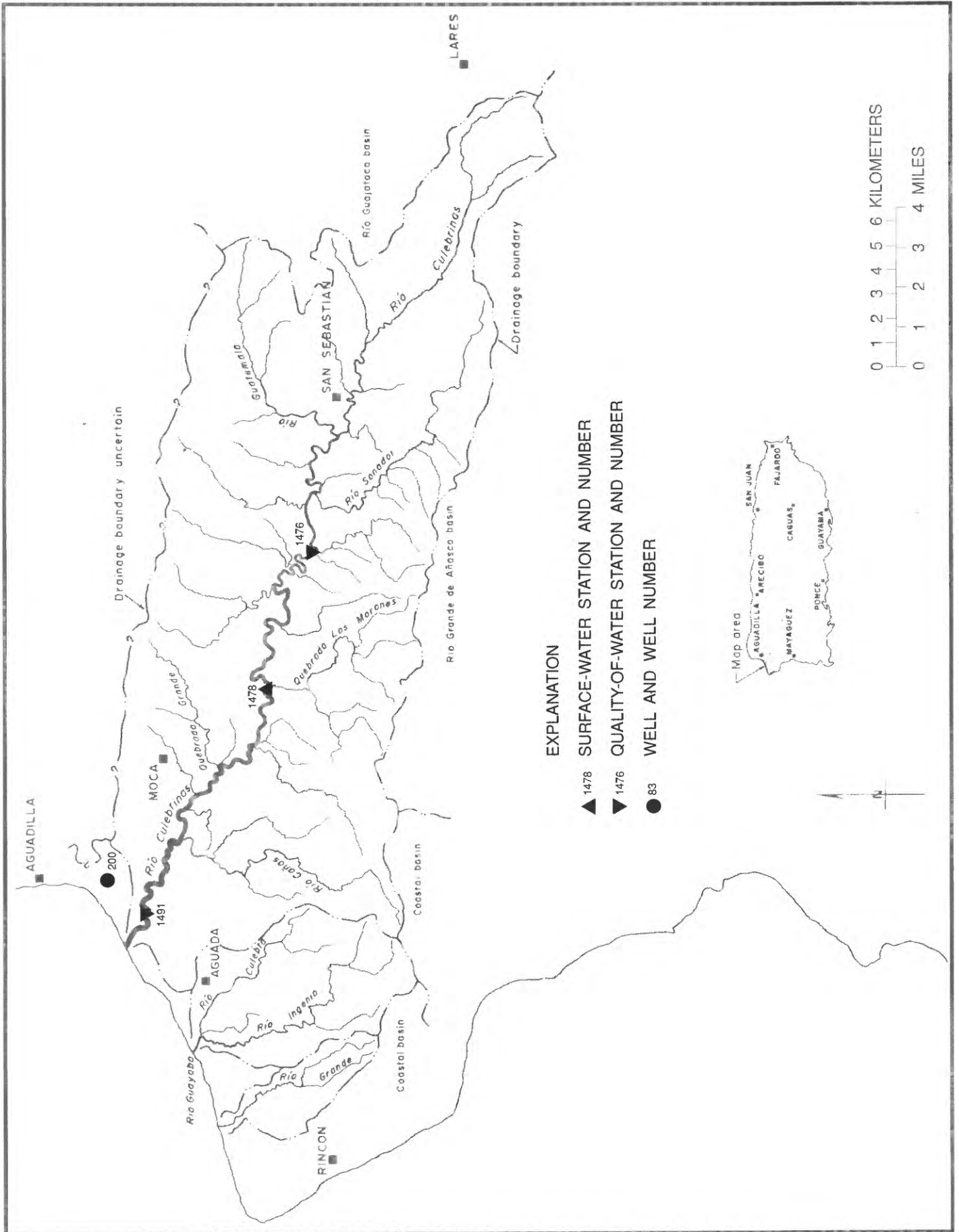


Figure 27.--Río Culebrinas basin.

RIO CULEBRINAS BASIN

50147600 RIO CULEBRINAS NEAR SAN SEBASTIAN, PR

WATER-QUALITY RECORDS

LOCATION.--Lat 18°20'51", long 67°02'40", at bridge on Highway 423, 1.3 mi (2.1 km) south of Quebrada El Salto Bridge on Highway 111, and 2.1 mi (3.4 km) west of Central La Plata.

DRAINAGE AREA.--58.2 mi² (150.7 km²).

PERIOD OF RECORD.--Water years 1979 to current year.

WATER-QUALITY DATA, WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993

| DATE | TIME | DIS- CHARGE, INST. CUBIC FEET PER SECOND | SPE- CIFIC CON- DUCT- ANCE (US/CM) | PH WATER WHOLE FIELD (STAND- ARD UNITS) | TEMPER- ATURE WATER (DEG C) | TUR- BID- ITY (NTU) | OXYGEN, DIS- SOLVED (MG/L) | OXYGEN, DIS- SOLVED (PER- CENT SATUR- ATION) | OXYGEN DEMAND, CHEM- ICAL (HIGH LEVEL) (MG/L) | COLI- FORM, FECAL, 0.45 UM-MF (COLS./ 100 ML) | STREP- TOCOCCI FECAL, (COLS. PER 100 ML) |
|----------|------|--|---|---|--------------------------------------|------------------------------|-------------------------------------|--|---|---|---|
| OCT 1992 | | | | | | | | | | | |
| 27... | 0920 | 174 | 290 | 7.5 | 25.0 | 120 | 6.8 | 81 | <10 | K15000 | 3100 |
| DEC | | | | | | | | | | | |
| 16... | 1120 | 74 | 278 | 7.4 | 23.5 | 18 | 7.6 | 90 | 11 | K17000 | 2100 |
| FEB 1993 | | | | | | | | | | | |
| 23... | 1130 | 37 | 289 | 8.5 | 21.5 | 2.7 | 9.5 | 105 | 31 | K140 | K160 |
| APR | | | | | | | | | | | |
| 27... | 1320 | 122 | 374 | 7.6 | 24.5 | 12 | 7.8 | 92 | 33 | 2300 | 220 |
| JUN | | | | | | | | | | | |
| 15... | 1045 | 97 | 265 | 7.4 | 26.0 | 21 | 8.0 | 98 | <10 | 5100 | K1800 |
| SEP | | | | | | | | | | | |
| 09... | 1020 | 231 | 299 | 7.4 | 23.3 | 240 | 7.8 | 81 | 13 | 39000 | K110000 |

| DATE | HARD- NESS TOTAL (MG/L AS CaCO3) | HARD- NESS NONCARB WH WAT TOT FLD MG/L AS CaCO3 | CALCIUM DIS- SOLVED (MG/L AS Ca) | MAGNE- SIUM, DIS- SOLVED (MG/L AS Mg) | SODIUM, DIS- SOLVED (MG/L AS Na) | SODIUM AD- SORP- TION RATIO | POTAS- SIUM, DIS- SOLVED (MG/L AS K) | ALKA- LITY WAT WH TOT FET FIELD MG/L AS CaCO3 | SULFIDE TOTAL (MG/L AS S) | SULFATE DIS- SOLVED (MG/L AS SO4) | CHLO- RIDE, DIS- SOLVED (MG/L AS Cl) |
|----------|---|---|--|--|--|---|---|---|------------------------------------|---|---|
| OCT 1992 | | | | | | | | | | | |
| 27... | 120 | 8 | 42 | 3.8 | 6.6 | 0.3 | 2.0 | 130 | <0.5 | 14 | 8.0 |
| DEC | | | | | | | | | | | |
| 16... | -- | -- | -- | -- | -- | -- | -- | 150 | -- | -- | -- |
| FEB 1993 | | | | | | | | | | | |
| 23... | -- | -- | -- | -- | -- | -- | -- | 110 | -- | -- | -- |
| APR | | | | | | | | | | | |
| 27... | 180 | 0 | 63 | 6.3 | 12 | 0.4 | 2.2 | 190 | 0.6 | 18 | 9.8 |
| JUN | | | | | | | | | | | |
| 15... | -- | -- | -- | -- | -- | -- | -- | 100 | -- | -- | -- |
| SEP | | | | | | | | | | | |
| 09... | 130 | 3 | 44 | 4.3 | 8.2 | 0.3 | 3.7 | 110 | -- | 13 | 7.9 |

| DATE | FLUO- RIDE, DIS- SOLVED (MG/L AS F) | SILICA, DIS- SOLVED (MG/L AS SiO2) | SOLIDS, SUM OF CONSTITU- ENTS, DIS- SOLVED (MG/L) | SOLIDS, DIS- SOLVED (TONS PER DAY) | RESIDUE TOTAL AT 105 DEG. C, SUS- PENDED (MG/L) | NITRO- GEN, NITRATE TOTAL (MG/L AS N) | NITRO- GEN, NITRITE TOTAL (MG/L AS N) | NITRO- GEN, NO2+NO3 TOTAL (MG/L AS N) | NITRO- GEN, AMMONIA TOTAL (MG/L AS N) | NITRO- GEN, ORGANIC TOTAL (MG/L AS N) |
|----------|--|--|---|---|---|--|--|--|--|--|
| OCT 1992 | | | | | | | | | | |
| 27... | <0.10 | 14 | 210 | 98.7 | 29 | 1.18 | 0.020 | 1.20 | 0.040 | 0.16 |
| DEC | | | | | | | | | | |
| 16... | -- | -- | -- | -- | <1 | 1.32 | 0.080 | 1.40 | 0.080 | 0.42 |
| FEB 1993 | | | | | | | | | | |
| 23... | -- | -- | -- | -- | 6 | 0.950 | 0.050 | 1.00 | 0.480 | 0.82 |
| APR | | | | | | | | | | |
| 27... | 0.10 | 20 | 232 | 76.4 | 13 | 1.04 | 0.060 | 1.10 | 0.150 | 0.65 |
| JUN | | | | | | | | | | |
| 15... | -- | -- | -- | -- | 33 | 1.02 | 0.080 | 1.10 | 0.120 | 0.38 |
| SEP | | | | | | | | | | |
| 09... | 0.20 | 16 | 176 | 110 | 92 | 1.12 | 0.080 | 1.20 | 0.110 | 0.39 |

K = non-ideal count

RIO CULEBRINAS BASIN

50147600 RIO CULEBRINAS NEAR SAN SEBASTIAN, PR--Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993

| DATE | NITRO- GEN, AM- MONIA + ORGANIC TOTAL (MG/L AS N) | NITRO- GEN, TOTAL (MG/L AS N) | NITRO- GEN, TOTAL (MG/L AS NO3) | PHOS- PHORUS TOTAL (MG/L AS P) | ARSENIC TOTAL (UG/L AS AS) | BARIUM, TOTAL RECOV- ERABLE (UG/L AS BA) | BORON, TOTAL RECOV- ERABLE (UG/L AS B) | CADMIUM TOTAL RECOV- ERABLE (UG/L AS CD) | CHRO- MIUM, TOTAL RECOV- ERABLE (UG/L AS CR) | COPPER, TOTAL RECOV- ERABLE (UG/L AS CU) |
|-----------|---|---|---|--|-------------------------------------|---|---|---|--|---|
| OCT 1992 | | | | | | | | | | |
| 27... | 0.20 | 1.4 | 6.2 | 0.050 | <1 | <100 | 20 | <1 | <1 | <10 |
| DEC 16... | 0.50 | 1.9 | 8.4 | 0.110 | -- | -- | -- | -- | -- | -- |
| FEB 1993 | | | | | | | | | | |
| 23... | 1.3 | 2.3 | 10 | 0.130 | -- | -- | -- | -- | -- | -- |
| APR 27... | 0.80 | 1.6 | 8.6 | 0.040 | <1 | <100 | 40 | <1 | <1 | <10 |
| JUN 15... | 0.50 | 1.9 | 7.1 | 0.090 | -- | -- | -- | -- | -- | -- |
| SEP 09... | 0.50 | 1.7 | 7.5 | 0.080 | -- | -- | -- | -- | -- | -- |

[illegible]

RIO CULEBRINAS BASIN

50147800 RIO CULEBRINAS AT HIGHWAY 404 NEAR MOCA, PR

LOCATION.--Lat 18°21'42", long 67°05'33", Hydrologic Unit 21010003, on right bank, at bridge on Highway 404, 0.3 mi (0.5 km) downstream from Quebrada Yagruma, and 2.8 mi (4.5 km) southeast of Moca.

DRAINAGE AREA.--71.2 mi² (184.4 km²).

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--July 1967 to current year.

GAGE.--Water-stage recorder. Elevation of gage is 45 ft (14 m), from topographic map.

REMARKS.--Records poor. Gage-height and precipitation satellite telemetry at station.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993
DAILY MEAN VALUES

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|-------|-------|-------|------|------|------|------|-------|-------|-------|------|-------|-------|
| 1 | e1450 | e500 | e180 | e100 | e200 | 56 | 111 | e260 | 211 | 89 | 62 | 147 |
| 2 | e880 | e400 | e140 | e91 | e170 | 59 | 115 | e280 | 167 | 81 | 60 | 105 |
| 3 | e520 | e300 | e190 | e86 | e120 | 58 | 123 | e1200 | 170 | 79 | 56 | 89 |
| 4 | e270 | e260 | e130 | e83 | e96 | 57 | 77 | e1900 | 372 | 75 | 53 | 83 |
| 5 | e360 | e240 | e140 | e82 | e86 | 55 | 66 | e940 | 221 | 73 | 53 | 265 |
| 6 | e840 | e230 | e150 | e84 | e80 | 54 | 85 | e600 | 152 | 69 | 78 | 126 |
| 7 | e680 | e200 | e120 | e81 | e76 | 50 | 118 | e1200 | 145 | 68 | 66 | 1390 |
| 8 | e980 | e190 | e110 | e82 | e73 | 46 | 65 | e900 | 129 | 68 | 107 | 640 |
| 9 | e900 | e180 | e100 | e78 | e69 | 46 | 74 | e450 | 201 | 67 | 91 | 252 |
| 10 | e2570 | e170 | e98 | e77 | e70 | 48 | 56 | e580 | 165 | 62 | 78 | 2000 |
| 11 | e2300 | e160 | e96 | e76 | e70 | 59 | 723 | e450 | 140 | 61 | 96 | 262 |
| 12 | e1100 | e160 | e95 | e75 | e67 | 64 | 295 | e230 | 150 | 65 | 70 | 181 |
| 13 | e500 | e190 | e150 | e72 | e74 | 78 | 134 | e200 | e275 | 62 | 57 | 156 |
| 14 | e550 | e500 | e210 | e72 | e90 | 49 | 611 | e180 | 180 | 70 | 54 | 147 |
| 15 | e1200 | e400 | e220 | e71 | e74 | 44 | 300 | e170 | 139 | 282 | 52 | 125 |
| 16 | e720 | e290 | e120 | e68 | e69 | 43 | 459 | e160 | 128 | 133 | 160 | 443 |
| 17 | e1400 | e210 | e110 | e68 | 66 | 46 | 362 | e270 | 107 | 74 | 499 | 485 |
| 18 | e1800 | e340 | e108 | e100 | 63 | 45 | 2310 | e150 | e350 | 67 | 261 | 264 |
| 19 | e720 | e340 | e104 | e71 | 63 | 42 | 463 | 188 | e300 | 76 | 122 | 1640 |
| 20 | e400 | e230 | e107 | e68 | 63 | 41 | 323 | 191 | e170 | 72 | 90 | 270 |
| 21 | e330 | e230 | e102 | e69 | 66 | 49 | 1370 | 382 | 149 | 64 | 79 | 172 |
| 22 | e310 | e200 | e100 | e65 | 61 | 47 | 372 | 2070 | 128 | 122 | 73 | 161 |
| 23 | e660 | e260 | e100 | e66 | 60 | 43 | 212 | 1550 | 118 | 117 | 67 | 156 |
| 24 | e880 | e180 | e97 | e65 | 65 | 40 | 223 | 296 | 118 | 88 | 156 | 146 |
| 25 | e540 | e160 | e95 | e64 | 68 | 76 | e160 | e257 | 151 | 83 | 1510 | 200 |
| 26 | e400 | e150 | e90 | e63 | 64 | 114 | e260 | 180 | 108 | 405 | 206 | 149 |
| 27 | e320 | e150 | e86 | e63 | 61 | 107 | e130 | 164 | 100 | 159 | 103 | 130 |
| 28 | e280 | e150 | e98 | e63 | 60 | 56 | e110 | 625 | 96 | 87 | 259 | 1050 |
| 29 | e360 | e230 | e88 | e260 | --- | 55 | e120 | 241 | 397 | 75 | 186 | 616 |
| 30 | e1200 | e250 | e220 | e120 | --- | 88 | e360 | 1020 | 143 | 69 | 303 | 1580 |
| 31 | e660 | --- | e200 | e350 | --- | 119 | --- | 323 | --- | 64 | 203 | --- |
| TOTAL | 26080 | 7450 | 3954 | 2833 | 2244 | 1834 | 10187 | 17607 | 5380 | 3026 | 5310 | 13430 |
| MEAN | 841 | 248 | 128 | 91.4 | 80.1 | 59.2 | 340 | 568 | 179 | 97.6 | 171 | 448 |
| MAX | 2570 | 500 | 220 | 350 | 200 | 119 | 2310 | 2070 | 397 | 405 | 1510 | 2000 |
| MIN | 270 | 150 | 86 | 63 | 60 | 40 | 56 | 150 | 96 | 61 | 52 | 83 |
| AC-FT | 51730 | 14780 | 7840 | 5620 | 4450 | 3640 | 20210 | 34920 | 10670 | 6000 | 10530 | 26640 |
| CFSM | 11.8 | 3.49 | 1.79 | 1.28 | 1.13 | .83 | 4.77 | 7.98 | 2.52 | 1.37 | 2.41 | 6.29 |
| IN. | 13.63 | 3.89 | 2.07 | 1.48 | 1.17 | .96 | 5.32 | 9.20 | 2.81 | 1.58 | 2.77 | 7.02 |

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1967 - 1993, BY WATER YEAR (WY)

| | MEAN | 350 | 145 | 77.7 | 70.2 | 65.6 | 143 | 475 | 381 | 312 | 337 | 517 |
|------|------|------|------|------|------|------|------|------|------|------|------|------|
| MAX | 1086 | 799 | 424 | 151 | 243 | 319 | 621 | 2054 | 769 | 847 | 831 | 1350 |
| (WY) | 1973 | 1982 | 1982 | 1971 | 1981 | 1981 | 1986 | 1986 | 1984 | 1979 | 1979 | 1978 |
| MIN | 231 | 108 | 72.1 | 51.2 | 37.0 | 30.4 | 26.4 | 96.7 | 82.7 | 91.8 | 119 | 145 |
| (WY) | 1968 | 1979 | 1992 | 1979 | 1992 | 1979 | 1970 | 1973 | 1974 | 1983 | 1970 | 1986 |

| SUMMARY STATISTICS | FOR 1992 CALENDAR YEAR | FOR 1993 WATER YEAR | WATER YEARS 1967 - 1993 |
|--------------------------|------------------------|---------------------|-------------------------|
| ANNUAL TOTAL | 109356 | 99335 | |
| ANNUAL MEAN | 299 | 272 | 294 |
| HIGHEST ANNUAL MEAN | | | 457 |
| LOWEST ANNUAL MEAN | | | 179 |
| HIGHEST DAILY MEAN | 3090 | 2570 | 13300 |
| LOWEST DAILY MEAN | 25 | 40 | 19 |
| ANNUAL SEVEN-DAY MINIMUM | 28 | 44 | 20 |
| INSTANTANEOUS PEAK FLOW | | 15000 | 69000 |
| INSTANTANEOUS PEAK STAGE | | | 36.60 |
| INSTANTANEOUS LOW FLOW | | | 16 |
| ANNUAL RUNOFF (AC-FT) | 216900 | 197000 | 213300 |
| ANNUAL RUNOFF (CFSM) | 4.20 | 3.82 | 4.13 |
| ANNUAL RUNOFF (INCHES) | 57.14 | 51.90 | 56.17 |
| 10 PERCENT EXCEEDS | 682 | 631 | 601 |
| 50 PERCENT EXCEEDS | 170 | 130 | 138 |
| 90 PERCENT EXCEEDS | 36 | 61 | 42 |

e Estimated

RIO CULEBRINAS BASIN

50149100 RIO CULEBRINAS NEAR AGUADA, PR

WATER-QUALITY RECORDS

LOCATION.--Lat 18°24'03", long 67°09'40", at bridge on Highway 2, and 2.3 mi (3.7 km) northeast of Aguada plaza.

DRAINAGE AREA.--97.0 mi² (251.2 km²).

PERIOD OF RECORD.--Water years 1958, 1970 to current year.

WATER-QUALITY DATA, WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993

| DATE | TIME | DIS- CHARGE, INST. CUBIC FEET PER SECOND | SPE- CIFIC CON- DUCT- ANCE (US/CM) | PH WATER WHOLE FIELD (STAND- ARD UNITS) | TEMPER- ATURE WATER (DEG C) | TUR- BID- ITY (NTU) | OXYGEN, DIS- SOLVED (MG/L) | OXYGEN, DIS- SOLVED (PER- CENT SATUR- ATION) | OXYGEN DEMAND, CHEM- ICAL (HIGH LEVEL) (MG/L) | COLI- FORM, FECAL, 0.45 UM-MF (COLS./ 100 ML) | STREP- TOCOCCI FECAL, (COLS. PER 100 ML) |
|----------|------|--|---|---|--------------------------------------|------------------------------|-------------------------------------|--|---|---|---|
| OCT 1992 | | | | | | | | | | | |
| 28... | 1150 | 851 | 270 | 7.4 | 26.0 | 207 | 3.0 | 36 | 34 | 45000 | 37000 |
| DEC | | | | | | | | | | | |
| 17... | 1035 | 169 | 328 | 7.2 | 23.5 | 21 | 3.5 | 40 | <10 | 2700 | K1800 |
| FEB 1993 | | | | | | | | | | | |
| 24... | 1025 | 50 | 350 | 7.6 | 25.0 | 5.3 | 3.4 | 40 | 25 | K60000 | K60000 |
| APR | | | | | | | | | | | |
| 28... | 0900 | 457 | 354 | 7.2 | 24.0 | 110 | 6.0 | 70 | 50 | 36000 | K60000 |
| JUN | | | | | | | | | | | |
| 16... | 1025 | 269 | 426 | 7.8 | 25.5 | 90 | 7.1 | 85 | 18 | 7200 | 5300 |
| SEP | | | | | | | | | | | |
| 09... | 0755 | 600 | 245 | 6.9 | 24.1 | 690 | 5.3 | 72 | 27 | K280000 | 22000 |

| DATE | HARD- NESS TOTAL (MG/L AS CACO3) | HARD- NESS NONCARB WH WAT TOT FLD MG/L AS CACO3 | CALCIUM DIS- SOLVED (MG/L AS CA) | MAGNE- SIUM, DIS- SOLVED (MG/L AS MG) | SODIUM, DIS- SOLVED (MG/L AS NA) | SODIUM AD- SORP- TION RATIO | POTAS- SIUM, DIS- SOLVED (MG/L AS K) | ALKA- LINITY WAT WH TOT FET MG/L AS CACO3 | SULFIDE TOTAL (MG/L AS S) | SULFATE DIS- SOLVED (MG/L AS SO4) | CHLO- RIDE, DIS- SOLVED (MG/L AS CL) |
|----------|---|---|--|--|--|---|---|--|------------------------------------|---|---|
| OCT 1992 | | | | | | | | | | | |
| 28... | 130 | 2 | 47 | 5.5 | 7.2 | 0.2 | 3.9 | 150 | <0.5 | 15 | 8.9 |
| DEC | | | | | | | | | | | |
| 17... | -- | -- | -- | -- | -- | -- | -- | 140 | -- | -- | -- |
| FEB 1993 | | | | | | | | | | | |
| 24... | -- | -- | -- | -- | -- | -- | -- | 180 | -- | -- | -- |
| APR | | | | | | | | | | | |
| 28... | 160 | 16 | 55 | 5.3 | 9.4 | 0.3 | 3.7 | 140 | <0.5 | 16 | 12 |
| JUN | | | | | | | | | | | |
| 16... | -- | -- | -- | -- | -- | -- | -- | 130 | -- | -- | -- |
| SEP | | | | | | | | | | | |
| 09... | 100 | 0 | 33 | 5.4 | 6.7 | 0.3 | 3.6 | 94 | -- | 16 | 7.8 |

| DATE | FLUO- RIDE, DIS- SOLVED (MG/L AS F) | SILICA, DIS- SOLVED (MG/L AS SiO2) | SOLIDS, SUM OF CONSTITU- ENTS, DIS- SOLVED (MG/L) | SOLIDS, DIS- SOLVED (TONS PER DAY) | RESIDUE TOTAL AT 105 DEG. C, SUS- PENDED (MG/L) | NITRO- GEN, NITRATE TOTAL (MG/L AS N) | NITRO- GEN, NITRITE TOTAL (MG/L AS N) | NITRO- GEN, NO2+NO3 TOTAL (MG/L AS N) | NITRO- GEN, AMMONIA TOTAL (MG/L AS N) | NITRO- GEN, ORGANIC TOTAL (MG/L AS N) |
|----------|--|---|---|---|---|--|--|--|--|--|
| OCT 1992 | | | | | | | | | | |
| 28... | <0.10 | 15 | 193 | 443 | 254 | 0.670 | 0.040 | 0.710 | 0.030 | 0.97 |
| DEC | | | | | | | | | | |
| 17... | -- | -- | -- | -- | 320 | 0.870 | 0.030 | 0.900 | 0.100 | 0.40 |
| FEB 1993 | | | | | | | | | | |
| 24... | -- | -- | -- | -- | 13 | 0.570 | 0.030 | 0.600 | 0.130 | 0.27 |
| APR | | | | | | | | | | |
| 28... | 0.10 | 18 | 211 | 260 | 225 | 0.750 | 0.050 | 0.800 | 0.170 | 0.73 |
| JUN | | | | | | | | | | |
| 16... | -- | -- | -- | -- | 490 | 0.670 | 0.030 | 0.700 | 0.100 | 0.80 |
| SEP | | | | | | | | | | |
| 09... | <0.10 | 13 | 151 | 245 | 388 | 0.870 | 0.030 | 0.900 | 0.110 | 0.19 |

K = non-ideal count

RIO CULEBRINAS BASIN

50149100 RIO CULEBRINAS NEAR AGUADA, PR--Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993

| DATE | NITRO- GEN, AM- MONIA + ORGANIC TOTAL (MG/L AS N) | NITRO- GEN, TOTAL (MG/L AS N) | NITRO- GEN, TOTAL (MG/L AS NO3) | PHOS- PHORUS TOTAL (MG/L AS P) | ARSENIC TOTAL (UG/L AS AS) | BARIUM, TOTAL RECOV- ERABLE (UG/L AS BA) | BORON, TOTAL RECOV- ERABLE (UG/L AS B) | CADMIUM TOTAL RECOV- ERABLE (UG/L AS CD) | CHRO- MIUM, TOTAL RECOV- ERABLE (UG/L AS CR) | COPPER, TOTAL RECOV- ERABLE (UG/L AS CU) |
|----------|---|---|---|--|-------------------------------------|---|---|---|--|---|
| OCT 1992 | | | | | | | | | | |
| 28... | 1.0 | 1.7 | 7.6 | 0.240 | 1 | <100 | 30 | <1 | <1 | 20 |
| DEC | | | | | | | | | | |
| 17... | 0.50 | 1.4 | 6.2 | 0.090 | -- | -- | -- | -- | -- | -- |
| FEB 1993 | | | | | | | | | | |
| 24... | 0.40 | 1.1 | 4.3 | 0.140 | -- | -- | -- | -- | -- | -- |
| APR | | | | | | | | | | |
| 28... | 0.90 | 1.7 | 7.1 | 0.100 | 1 | <100 | 30 | <1 | 6 | <10 |
| JUN | | | | | | | | | | |
| 16... | 0.90 | 1.6 | 7.5 | 0.060 | -- | -- | -- | -- | -- | -- |
| SEP | | | | | | | | | | |
| 09... | 0.30 | 1.2 | 5.3 | 0.220 | -- | -- | -- | -- | -- | -- |

| DATE | IRON, TOTAL RECOV- ERABLE (UG/L AS FE) | LEAD, TOTAL RECOV- ERABLE (UG/L AS PB) | MANGA- NESE, TOTAL RECOV- ERABLE (UG/L AS MN) | MERCURY TOTAL RECOV- ERABLE (UG/L AS HG) | SELE- NIUM, TOTAL (UG/L AS SE) | SILVER, TOTAL RECOV- ERABLE (UG/L AS AG) | ZINC, TOTAL RECOV- ERABLE (UG/L AS ZN) | CYANIDE TOTAL (MG/L AS CN) | PHENOLS TOTAL (UG/L) | METHY- LENE BLUE ACTIVE SUB- STANCE (MG/L) |
|----------|---|---|---|---|--|---|---|-------------------------------------|----------------------------|--|
| OCT 1992 | | | | | | | | | | |
| 28... | 7400 | 2 | 370 | <0.10 | <1 | <1 | 30 | <0.010 | 1 | 0.04 |
| DEC | | | | | | | | | | |
| 17... | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| FEB 1993 | | | | | | | | | | |
| 24... | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| APR | | | | | | | | | | |
| 28... | 5200 | 3 | 380 | <0.10 | <1 | <1 | 20 | <0.010 | 2 | 0.01 |
| JUN | | | | | | | | | | |
| 16... | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| SEP | | | | | | | | | | |
| 09... | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |

PESTICIDE ANALYSES

| DATE | TIME | PCB, TOTAL (UG/L) | ALDRIN, TOTAL (UG/L) | CHLOR- DANE, TOTAL (UG/L) | DDD, TOTAL (UG/L) | DDE, TOTAL (UG/L) | DDT, TOTAL (UG/L) | DI- ELDRIN TOTAL (UG/L) | ENDO- SULFAN, TOTAL (UG/L) |
|----------|------|-------------------------|----------------------------|------------------------------------|-------------------------|-------------------------|-------------------------|----------------------------------|-------------------------------------|
| JUL 1993 | | | | | | | | | |
| 07... | 0945 | <0.1 | <0.010 | <0.1 | <0.010 | <0.010 | <0.010 | <0.010 | <0.010 |

| DATE | ENDRIN WATER UNFLTRD REC (UG/L) | ETHION, TOTAL (UG/L) | HEPTA- CHLOR, TOTAL (UG/L) | HEPTA- CHLOR EPOXIDE TOTAL (UG/L) | LINDANE TOTAL (UG/L) | MALA- THION, TOTAL (UG/L) | METH- OXY- CHLOR, TOTAL (UG/L) | METHYL PARA- THION, TOTAL (UG/L) | MIREX, TOTAL (UG/L) |
|----------|---|----------------------------|-------------------------------------|---|----------------------------|------------------------------------|--|--|---------------------------|
| JUL 1993 | | | | | | | | | |
| 07... | <0.010 | <0.01 | <0.010 | <0.010 | <0.010 | <0.01 | <0.01 | <0.01 | <0.01 |

| DATE | PARA- THION, TOTAL (UG/L) | NAPH- THA- LENES, POLY- CHLOR. TOTAL (UG/L) | PER- THANE TOTAL (UG/L) | TOX- APHENE, TOTAL (UG/L) | TOTAL TRI- THION (UG/L) | 2,4-D, TOTAL (UG/L) | 2,4,5-T TOTAL (UG/L) | 2, 4-DP TOTAL (UG/L) | SILVEX, TOTAL (UG/L) |
|----------|------------------------------------|---|----------------------------------|------------------------------------|----------------------------------|---------------------------|----------------------------|----------------------------|----------------------------|
| JUL 1993 | | | | | | | | | |
| 07... | <0.01 | <0.10 | <0.1 | <1 | <0.01 | 0.12 | <0.01 | <0.01 | <0.01 |

CULEBRA, PR

421

50214500 QUEBRADA RESACA NEAR MONTE RESACA, CULEBRA, PR

LOCATION.--Lat 18°19'11", long 65°18'10", Hydrologic Unit 21010006, on right bank, 1.0 mi (1.6 km), north of Culebra City Hall, 0.9 mi (1.4 km) southwest of Monte Resaca, and 1.0 mi (1.6 km) east of Bahia Tamarindo.

DRAINAGE AREA.--0.23 mi² (0.60 km²).

WATER-STAGE RECORDS

PERIOD OF RECORD.--October 1991 to current year.

GAGE.--Water-stage recorder. Elevation of gage is 66 ft (20 m), from topographic map.

REMARKS.--Gage-height and precipitation satellite telemetry at station. All gage-heights of 5.30 ft or lower are considered zero flow.

EXTREMES FOR PERIOD OF RECORD.--Maximum gage-height 7.49 ft (2.283 m), May 26; minimum, 4.68 ft (1.426 m), Aug. 9.

EXTREMES FOR CURRENT YEAR.--Maximum gage-height 6.96 ft (2.121 m), Dec. 30; minimum, 4.68 ft (1.426 m), Aug. 9.

GAGE HEIGHT, FEET, WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993
DAILY MEAN VALUES

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|------|------|------|------|------|-------|------|------|------|-----|------|------|------|
| 1 | 4.82 | 4.91 | 5.05 | 5.01 | 4.84 | 4.87 | 4.85 | 4.82 | --- | 4.90 | 4.95 | 4.72 |
| 2 | 4.82 | 4.91 | 4.99 | 4.98 | 4.84 | 4.88 | 4.84 | 4.81 | --- | 4.90 | 4.96 | 4.72 |
| 3 | 4.83 | 4.97 | 4.96 | 4.96 | 4.84 | 4.88 | 4.84 | 4.81 | --- | 4.91 | 4.96 | 4.72 |
| 4 | 4.83 | 5.41 | 4.91 | 4.93 | 4.84 | 4.89 | 4.83 | 4.80 | --- | 4.90 | 4.96 | 4.72 |
| 5 | 4.83 | 5.12 | 4.91 | 4.91 | 4.84 | 4.89 | 4.84 | 4.81 | --- | 4.91 | 4.81 | 4.72 |
| 6 | 4.83 | 4.92 | 4.91 | 4.89 | 4.83 | 4.89 | 4.84 | 4.81 | --- | 4.90 | 4.73 | 4.72 |
| 7 | 4.84 | 4.91 | 4.91 | 4.86 | 4.83 | 4.88 | 4.82 | 4.82 | --- | 4.91 | 4.73 | 4.72 |
| 8 | 4.84 | 4.90 | 4.91 | 4.85 | 4.82 | 4.88 | 4.78 | 4.84 | --- | 4.90 | 4.73 | 4.73 |
| 9 | 4.84 | 4.90 | 4.93 | 4.85 | 4.81 | 4.87 | 4.80 | 5.15 | --- | 4.89 | 4.71 | 4.73 |
| 10 | 4.84 | 4.89 | 4.91 | 4.85 | 4.81 | 4.87 | 4.81 | 4.86 | --- | 4.90 | 4.69 | 4.73 |
| 11 | 4.84 | 4.90 | 4.91 | 4.85 | 4.81 | 4.86 | 4.80 | 4.86 | --- | 4.92 | 4.69 | 4.73 |
| 12 | 4.84 | 4.90 | 4.91 | 4.85 | 4.80 | 4.86 | 4.79 | 4.86 | --- | 4.91 | 4.69 | 4.73 |
| 13 | 4.84 | 4.89 | 4.91 | 4.85 | 4.82 | 4.85 | 4.82 | 4.86 | --- | 4.92 | 4.69 | 4.73 |
| 14 | 4.84 | 4.92 | 4.94 | 4.85 | 4.83 | 4.85 | 4.86 | 4.84 | --- | 4.93 | 4.69 | 4.73 |
| 15 | 4.83 | 4.90 | 4.92 | 4.86 | 4.82 | 4.86 | 4.86 | 4.82 | --- | 4.93 | 4.69 | 4.73 |
| 16 | 4.84 | 4.90 | 4.89 | 4.86 | 4.82 | 4.86 | 4.84 | 4.81 | --- | 4.93 | 4.69 | 4.74 |
| 17 | 4.84 | 4.91 | 4.89 | 4.84 | 48.40 | 4.87 | 4.88 | 4.80 | --- | 4.93 | 4.70 | 4.74 |
| 18 | 4.83 | 4.90 | 4.90 | 4.82 | 4.85 | 4.88 | 4.81 | 4.78 | --- | 4.93 | 4.70 | 4.74 |
| 19 | 4.83 | 4.90 | 4.90 | 4.81 | 4.85 | 4.87 | 4.82 | 4.76 | --- | 4.94 | 4.70 | 4.74 |
| 20 | 4.84 | 4.96 | 4.90 | 4.81 | 4.86 | 4.87 | 4.82 | 4.78 | --- | 4.94 | 4.70 | 4.74 |
| 21 | 4.83 | 4.92 | 4.90 | 4.80 | 4.88 | 4.87 | 4.79 | 4.80 | --- | 4.94 | 4.70 | 4.74 |
| 22 | 4.83 | 4.91 | 4.90 | 4.82 | 4.88 | 4.86 | 4.76 | 4.78 | --- | 4.94 | 4.70 | 4.74 |
| 23 | 4.84 | 4.90 | 4.90 | 4.84 | 4.87 | 4.86 | 4.75 | 4.78 | --- | 4.95 | 4.70 | 4.75 |
| 24 | 4.86 | 4.90 | 4.91 | 4.85 | 4.87 | 4.87 | 4.76 | 4.77 | --- | 4.93 | 4.70 | 4.75 |
| 25 | 4.85 | 4.91 | 4.91 | 4.85 | 4.87 | 4.88 | 4.76 | 4.78 | --- | 4.93 | 4.71 | 4.75 |
| 26 | 4.86 | 4.91 | 4.91 | 4.84 | 4.87 | 4.87 | 4.75 | 4.77 | --- | 4.94 | 4.71 | 4.75 |
| 27 | 4.87 | 5.18 | 4.90 | 4.83 | 4.86 | 4.86 | 4.79 | 4.75 | --- | 4.95 | 4.71 | 4.75 |
| 28 | 4.87 | 5.16 | 4.89 | 4.83 | 4.87 | 4.85 | 4.79 | 4.74 | --- | 4.95 | 4.71 | 4.75 |
| 29 | 4.88 | 5.10 | 5.25 | 4.82 | --- | 4.85 | 4.78 | 4.73 | --- | 4.95 | 4.71 | 4.75 |
| 30 | 4.88 | 5.39 | 5.59 | 4.82 | --- | 4.85 | 4.85 | 4.71 | --- | 4.95 | 4.71 | 4.76 |
| 31 | 4.89 | --- | 5.09 | 4.82 | --- | 4.84 | --- | --- | --- | 4.94 | 4.71 | --- |
| MEAN | 4.84 | 4.97 | 4.96 | 4.86 | 6.40 | 4.87 | 4.81 | --- | --- | 4.92 | 4.74 | 4.74 |
| MAX | 4.89 | 5.41 | 5.59 | 5.01 | 48.40 | 4.89 | 4.88 | --- | --- | 4.95 | 4.96 | 4.76 |
| MIN | 4.82 | 4.89 | 4.89 | 4.80 | 4.80 | 4.84 | 4.75 | --- | --- | 4.89 | 4.69 | 4.72 |

CAL YR 1992 MEAN 4.90 MAX 5.72 MIN 4.79

CULEBRA, PR

50215000 DRAINAGE CANAL AT CULEBRA AIRPORT, CULEBRA, PR

LOCATION.--Lat 18°19'06", long 65°18'32", Hydrologic Unit 21010006, on right bank, 0.5 mi (0.8 km), northwest of Culebra City Hall, 0.9 mi (1.4 km) northwest of desalination plant, 0.3 mi (0.5 km) northeast of Playa Sardinas I, and of Highway 251 at airport south perimeter fence.

DRAINAGE AREA.--0.08 mi² (0.20 km²).

WATER-STAGE RECORDS

PERIOD OF RECORD.--October 1991 to current year (discontinued).

GAGE.--Water-stage recorder. Elevation of gage is 66 ft (20 m), from topographic map.

REMARKS.--Gage-height and precipitation satellite telemetry at station. All gage-heights of 10.25 ft or lower are considered zero flow.

EXTREMES FOR PERIOD OF RECORD.--Maximum gage-height recorded, 10.52 ft (3.206 m), Apr. 21, 1993; minimum, 9.73 ft (2.966 m), Mar. 6, 1992.

EXTREMES FOR CURRENT YEAR.--Maximum gage-height recorded, 10.52 ft (3.206 m), Apr. 21; minimum, 10.11 ft (3.082 m), Jan. 8.

GAGE HEIGHT, FEET, WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993
DAILY MEAN VALUES

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|------|-------|-------|-------|-------|-------|-------|-------|-------|-----|-------|-------|-------|
| 1 | 10.27 | 10.25 | 10.23 | 10.25 | 10.16 | 10.22 | 10.21 | 10.24 | --- | 10.25 | 10.28 | 10.28 |
| 2 | 10.28 | 10.25 | 10.23 | 10.25 | 10.16 | 10.21 | 10.22 | 10.23 | --- | 10.25 | 10.29 | 10.27 |
| 3 | 10.27 | 10.26 | 10.23 | 10.25 | 10.16 | 10.21 | 10.22 | 10.21 | --- | 10.33 | 10.31 | 10.27 |
| 4 | 10.27 | 10.27 | 10.23 | 10.20 | 10.15 | 10.20 | 10.22 | 10.22 | --- | 10.30 | 10.31 | 10.30 |
| 5 | 10.27 | 10.25 | 10.27 | 10.22 | 10.16 | 10.21 | 10.26 | 10.23 | --- | 10.28 | 10.31 | 10.34 |
| 6 | 10.29 | 10.25 | 10.26 | 10.18 | 10.16 | 10.21 | 10.27 | 10.23 | --- | 10.28 | 10.31 | 10.29 |
| 7 | 10.28 | 10.24 | 10.26 | 10.13 | 10.16 | 10.21 | 10.27 | 10.25 | --- | 10.28 | 10.30 | 10.22 |
| 8 | 10.30 | 10.24 | 10.26 | 10.13 | 10.16 | 10.22 | 10.27 | 10.26 | --- | 10.26 | 10.30 | 10.22 |
| 9 | 10.30 | 10.25 | 10.26 | 10.14 | 10.16 | 10.21 | 10.27 | 10.23 | --- | 10.27 | 10.30 | 10.23 |
| 10 | 10.29 | 10.25 | 10.26 | 10.16 | 10.17 | 10.21 | 10.28 | 10.23 | --- | 10.28 | 10.30 | 10.24 |
| 11 | 10.29 | 10.24 | 10.26 | 10.15 | 10.18 | 10.20 | 10.28 | 10.22 | --- | 10.28 | 10.31 | 10.26 |
| 12 | 10.26 | 10.25 | 10.26 | 10.15 | 10.18 | 10.21 | 10.28 | 10.21 | --- | 10.29 | 10.31 | 10.26 |
| 13 | 10.26 | 10.24 | 10.26 | 10.15 | 10.18 | 10.20 | 10.27 | 10.21 | --- | 10.28 | 10.31 | 10.26 |
| 14 | 10.25 | 10.25 | 10.25 | 10.15 | 10.17 | 10.21 | 10.27 | 10.22 | --- | 10.28 | 10.31 | 10.25 |
| 15 | 10.24 | 10.25 | 10.24 | 10.15 | 10.18 | 10.21 | 10.27 | 10.23 | --- | 10.28 | 10.31 | 10.26 |
| 16 | 10.25 | 10.25 | 10.20 | 10.17 | 10.19 | 10.22 | 10.27 | 10.23 | --- | 10.28 | 10.30 | 10.33 |
| 17 | 10.28 | 10.25 | 10.19 | 10.16 | 10.20 | 10.21 | 10.27 | 10.21 | --- | 10.28 | 10.28 | 10.34 |
| 18 | 10.29 | 10.25 | 10.14 | 10.16 | 10.21 | 10.22 | 10.28 | 10.21 | --- | 10.27 | 10.28 | 10.32 |
| 19 | 10.26 | 10.25 | 10.15 | 10.18 | 10.21 | 10.22 | 10.28 | 10.22 | --- | 10.28 | 10.29 | 10.30 |
| 20 | 10.25 | 10.25 | 10.14 | 10.17 | 10.24 | 10.22 | 10.29 | 10.21 | --- | 10.28 | 10.30 | 10.21 |
| 21 | 10.24 | 10.25 | 10.14 | 10.17 | 10.22 | 10.22 | 10.29 | --- | --- | 10.27 | 10.30 | 10.21 |
| 22 | 10.25 | 10.25 | 10.17 | 10.16 | 10.21 | 10.22 | 10.28 | --- | --- | 10.26 | 10.29 | 10.21 |
| 23 | 10.25 | 10.25 | 10.14 | 10.16 | 10.22 | 10.24 | 10.29 | --- | --- | 10.32 | 10.27 | 10.21 |
| 24 | 10.26 | 10.25 | 10.19 | 10.16 | 10.22 | 10.21 | 10.27 | --- | --- | 10.31 | 10.28 | 10.21 |
| 25 | 10.27 | 10.25 | 10.15 | 10.16 | 10.22 | 10.20 | 10.27 | --- | --- | 10.26 | 10.28 | 10.21 |
| 26 | 10.28 | 10.25 | 10.26 | 10.17 | 10.23 | 10.20 | 10.27 | --- | --- | 10.28 | 10.28 | 10.23 |
| 27 | 10.28 | 10.25 | 10.21 | 10.16 | 10.25 | 10.20 | 10.27 | --- | --- | 10.26 | 10.29 | 10.24 |
| 28 | 10.22 | 10.25 | 10.24 | 10.14 | 10.26 | 10.20 | 10.28 | --- | --- | 10.26 | 10.27 | 10.23 |
| 29 | 10.23 | 10.25 | 10.24 | 10.15 | --- | 10.20 | 10.28 | --- | --- | 10.26 | 10.27 | 10.23 |
| 30 | 10.24 | 10.23 | 10.25 | 10.16 | --- | 10.20 | 10.26 | --- | --- | 10.27 | 10.27 | 10.22 |
| 31 | 10.25 | --- | 10.25 | 10.16 | --- | 10.21 | --- | --- | --- | 10.28 | 10.28 | --- |
| MEAN | 10.27 | 10.25 | 10.22 | 10.17 | 10.19 | 10.21 | 10.27 | --- | --- | 10.28 | 10.29 | 10.25 |
| MAX | 10.30 | 10.27 | 10.27 | 10.25 | 10.26 | 10.24 | 10.29 | --- | --- | 10.33 | 10.31 | 10.34 |
| MIN | 10.22 | 10.23 | 10.14 | 10.13 | 10.15 | 10.20 | 10.21 | --- | --- | 10.25 | 10.27 | 10.21 |

VIEQUES, PR

50231000 QUEBRADA COFRESI TRIBUTARY NEAR ISABEL SEGUNDA, VIEQUES, PR

LOCATION.--Lat 18°08'21", long 65°26'06", Hydrologic Unit 21010006, on right bank, 1.0 mi (1.6 km), south-southwest of Isabel Segunda Plaza, 0.5 mi (0.8 km) north of Destino school, and 1.5 mi (2.4 km) southeast of junction of Highways 200 and 201.

DRAINAGE AREA.--0.28 mi² (0.72 km²).

WATER-STAGE RECORDS

PERIOD OF RECORD.--July 1991 to current year.

GAGE.--Water-stage recorder. Elevation of gage is 196 ft (60 m), from topographic map.

REMARKS.--Gage-height and precipitation satellite telemetry at station. All gage-heights of 8.20 ft or lower are considered zero flow.

EXTREMES FOR PERIOD OF RECORD.--Maximum gage-height, 11.20 ft (3.414 m), July 23, 1993; minimum, 7.69 ft (2.344 m), Aug. 28, 1992.

EXTREMES FOR CURRENT YEAR.--Maximum gage-height, 11.20 ft (3.414 m), July 23; minimum, 7.94 ft (2.420 m), Apr. 15.

GAGE HEIGHT, FEET, WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993
DAILY MEAN VALUES

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|------|------|------|------|------|------|------|------|------|------|------|------|------|
| 1 | 8.66 | 8.69 | 8.66 | 8.71 | 8.60 | 8.54 | 8.35 | 8.61 | 8.67 | 8.60 | 8.72 | 8.50 |
| 2 | 8.60 | 8.68 | 8.65 | 8.71 | 8.59 | --- | 8.33 | --- | 8.66 | 8.62 | 8.71 | 8.45 |
| 3 | 8.54 | 8.67 | 8.62 | 8.70 | 8.64 | 8.49 | 8.31 | --- | 8.61 | 8.62 | 8.69 | 8.51 |
| 4 | 8.53 | 8.65 | 8.63 | 8.68 | 8.59 | 8.50 | 8.28 | 8.59 | 8.60 | 8.60 | 8.68 | 8.50 |
| 5 | 8.54 | 8.64 | 8.63 | 8.69 | 8.58 | 8.50 | 8.24 | 8.57 | 8.60 | 8.59 | 8.68 | 8.84 |
| 6 | 8.55 | 8.62 | 8.62 | 8.71 | 8.58 | 8.50 | 8.21 | 8.54 | 8.59 | 8.58 | 8.65 | 8.65 |
| 7 | 8.56 | 8.57 | 8.61 | 8.69 | --- | 8.49 | 8.17 | 8.56 | 8.58 | 8.56 | 8.64 | 8.57 |
| 8 | 8.57 | 8.57 | 8.63 | 8.68 | 8.57 | 8.47 | 8.13 | 8.73 | 8.55 | 8.57 | 8.63 | 8.55 |
| 9 | 8.57 | 8.56 | 8.62 | 8.70 | 8.58 | 8.47 | 8.11 | 8.70 | 8.55 | 8.55 | 8.62 | 8.49 |
| 10 | 8.52 | 8.56 | 8.62 | 8.68 | 8.57 | 8.47 | 8.09 | 8.68 | 8.55 | 8.56 | 8.62 | 8.47 |
| 11 | 8.52 | 8.56 | 8.61 | 8.68 | 8.57 | 8.47 | --- | 8.66 | 8.55 | 8.70 | 8.63 | 8.46 |
| 12 | 8.45 | 8.59 | 8.61 | 8.68 | 8.57 | 8.47 | --- | 8.65 | 8.53 | 8.63 | 8.62 | 8.45 |
| 13 | 8.50 | 8.60 | 8.63 | 8.66 | 8.56 | 8.48 | 8.01 | 8.64 | 8.50 | 8.59 | 8.60 | 8.41 |
| 14 | 8.51 | 8.61 | 8.60 | 8.68 | 8.57 | 8.44 | 7.99 | 8.65 | 8.47 | 8.57 | 8.60 | 8.41 |
| 15 | 8.51 | 8.59 | 8.59 | --- | 8.58 | 8.44 | 7.96 | 8.65 | 8.47 | 8.57 | 8.66 | 8.45 |
| 16 | 8.52 | 8.58 | 8.58 | --- | 8.57 | 8.44 | 8.03 | 8.65 | 8.46 | 8.56 | 8.70 | 8.90 |
| 17 | 8.55 | 8.62 | 8.60 | --- | 8.57 | 8.44 | 8.25 | 8.65 | 8.42 | 8.56 | 8.62 | 8.75 |
| 18 | 8.58 | 8.62 | 8.60 | 8.64 | 8.57 | 8.46 | 8.30 | 8.64 | 8.37 | 8.54 | 8.59 | 8.68 |
| 19 | 8.61 | 8.61 | 8.60 | 8.63 | 8.58 | 8.49 | 8.26 | 8.64 | 8.62 | 8.53 | 8.59 | 8.61 |
| 20 | 8.62 | 8.64 | 8.59 | 8.62 | 8.59 | 8.45 | 8.21 | 8.65 | 8.77 | 8.51 | 8.67 | 8.58 |
| 21 | 8.84 | 8.61 | 8.57 | 8.61 | 8.57 | 8.44 | 8.15 | 8.64 | 8.68 | 8.49 | 8.67 | 8.55 |
| 22 | 8.93 | 8.63 | 8.60 | 8.63 | 8.56 | 8.42 | 8.10 | 8.67 | 8.68 | 8.60 | 8.63 | 8.51 |
| 23 | 8.80 | 8.60 | 8.60 | 8.61 | 8.54 | 8.41 | 8.04 | 8.71 | --- | 9.34 | 8.75 | 8.50 |
| 24 | 8.78 | 8.60 | 8.63 | 8.61 | 8.54 | 8.42 | 8.21 | 8.70 | --- | 8.93 | 8.66 | 8.49 |
| 25 | 8.77 | 8.60 | 8.60 | 8.65 | 8.53 | 8.41 | 8.40 | 8.73 | 8.67 | 8.85 | 8.59 | 8.47 |
| 26 | 8.76 | 8.59 | 8.70 | 8.62 | 8.54 | 8.39 | 8.44 | --- | 8.66 | 8.84 | 8.55 | 8.45 |
| 27 | 8.75 | 8.69 | 8.65 | 8.62 | 8.52 | 8.39 | 8.52 | 8.71 | 8.65 | 8.80 | 8.52 | 8.42 |
| 28 | 8.74 | 8.68 | 8.63 | 8.60 | 8.52 | 8.39 | 8.52 | 8.71 | 8.63 | 8.77 | 8.50 | 8.43 |
| 29 | 8.72 | 8.68 | 8.87 | 8.61 | --- | 8.39 | 8.51 | 8.70 | 8.62 | 8.75 | 8.48 | 8.44 |
| 30 | 8.71 | 8.68 | 9.02 | 8.60 | --- | 8.38 | 8.62 | 8.70 | 8.61 | 8.74 | 8.48 | 8.51 |
| 31 | 8.70 | --- | 8.74 | 8.61 | --- | 8.36 | --- | 8.68 | --- | 8.74 | 8.47 | --- |
| MEAN | 8.63 | 8.62 | 8.64 | --- | --- | --- | --- | --- | --- | 8.66 | 8.62 | 8.53 |
| MAX | 8.93 | 8.69 | 9.02 | --- | --- | --- | --- | --- | --- | 9.34 | 8.75 | 8.90 |
| MIN | 8.45 | 8.56 | 8.57 | --- | --- | --- | --- | --- | --- | 8.49 | 8.47 | 8.41 |

VIEQUES, PR

50232000 QUEBRADA LA MINA NEAR ESPERANZA, VIEQUES, PR

LOCATION.--Lat 18°06'54", long 65°28'15", Hydrologic Unit 21010006, on left bank 300 ft (91 m), west from state road 996, 1.4 mi (2.2 km) south of Cerro Martineau, 0.7 mi (1.1 km) east-northeast of Colonia Puerto Real on road 201 and 1.2 mi (1.9 km) north of Esperanza.

DRAINAGE AREA.--0.68 mi² (1.76 km²).

WATER-STAGE RECORDS

PERIOD OF RECORD.--July 1991 to current year.

GAGE.--Water-stage recorder. Elevation of gage is 98 ft (30 m), from topographic map.

REMARKS.--Gage-height and precipitation satellite telemetry at station. All gage-heights of 9.20 ft or lower are considered zero flow.

EXTREMES OBSERVED FOR PERIOD OF RECORD.--Maximum gage-height, 9.90 ft (3.018 m), June 29, 30; minimum, 8.80 ft (2.682 m), June 24.

EXTREMES FOR CURRENT YEAR.--Maximum gage-height, 9.90 ft (3.018 m), June 29, 30; minimum, 8.80 ft (2.682 m), June 24.

GAGE HEIGHT, FEET, WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993
DAILY MEAN VALUES

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|------|------|------|------|------|------|------|------|------|------|------|------|------|
| 1 | 8.90 | 8.85 | 9.20 | 9.19 | 8.85 | 8.85 | 8.85 | 8.84 | 8.81 | 8.84 | 8.84 | 8.87 |
| 2 | 8.90 | 8.85 | 9.19 | 9.20 | 8.86 | 8.85 | 8.85 | 8.88 | 8.81 | 8.84 | 8.84 | 8.87 |
| 3 | 8.90 | 8.85 | 9.18 | 9.20 | 8.86 | 8.85 | 8.84 | 8.84 | 8.81 | 8.84 | 8.84 | 8.87 |
| 4 | 8.88 | 8.89 | 9.19 | 9.20 | 8.86 | 8.85 | 8.85 | 8.84 | 8.82 | 8.85 | 8.84 | 8.87 |
| 5 | 8.85 | 8.85 | 9.19 | 9.20 | 8.86 | 8.85 | 8.85 | 8.84 | 8.82 | 8.85 | 8.85 | 8.87 |
| 6 | 8.85 | 8.85 | 9.19 | 9.20 | 8.85 | 8.85 | 8.85 | 8.84 | 8.82 | 8.85 | 8.85 | 8.86 |
| 7 | 8.85 | 8.86 | 9.19 | 9.20 | 8.85 | 8.85 | 8.85 | 8.88 | 8.82 | 8.85 | 8.85 | 8.86 |
| 8 | 8.85 | 8.86 | 9.20 | 9.20 | 8.85 | 8.85 | 8.85 | 8.94 | 8.82 | 8.85 | 8.85 | 8.86 |
| 9 | 8.85 | 8.86 | 9.20 | 9.20 | 8.85 | 8.85 | 8.85 | 8.85 | 8.82 | 8.85 | 8.85 | 8.86 |
| 10 | 8.85 | 8.86 | 9.20 | 9.20 | 8.85 | 8.85 | 8.85 | 8.84 | 8.82 | 8.85 | 8.85 | 8.86 |
| 11 | 8.85 | 8.86 | 9.19 | 9.20 | 8.86 | 8.85 | 8.85 | 8.84 | 8.82 | 8.85 | 8.85 | 8.87 |
| 12 | 8.85 | 8.86 | 8.90 | 9.20 | 8.86 | 8.85 | 8.85 | 8.83 | 8.82 | 8.85 | 8.86 | 8.87 |
| 13 | 8.85 | 8.86 | 8.86 | 9.20 | 8.86 | 8.85 | 8.85 | 8.84 | 8.82 | 8.84 | 8.86 | 8.87 |
| 14 | 8.85 | 9.04 | 8.85 | 9.20 | 8.86 | 8.85 | 8.85 | 8.84 | 8.82 | 8.84 | 8.86 | 8.87 |
| 15 | 8.85 | 9.19 | 8.85 | 9.20 | 8.86 | 8.85 | 8.85 | 8.84 | 8.82 | 8.84 | 8.86 | 8.87 |
| 16 | 8.85 | 9.18 | 8.85 | 9.20 | 8.86 | 8.85 | 8.85 | 8.84 | 8.82 | 8.84 | 8.86 | 9.12 |
| 17 | 8.85 | 9.12 | 8.86 | 9.20 | 8.86 | 8.85 | 8.84 | 8.83 | 8.82 | 8.85 | 8.85 | 9.15 |
| 18 | 8.85 | 9.18 | 8.86 | 9.20 | 8.86 | 8.85 | 8.85 | 8.83 | 8.82 | 8.85 | 8.85 | 9.15 |
| 19 | 8.85 | 9.17 | 8.86 | 9.21 | 8.86 | 8.85 | 8.85 | 8.83 | 8.82 | 8.85 | 8.85 | 9.16 |
| 20 | 8.84 | 9.17 | 8.86 | 9.11 | 8.86 | 8.85 | 8.84 | 8.83 | 8.82 | 8.85 | 8.85 | 9.16 |
| 21 | 8.83 | 9.18 | 8.86 | 8.87 | 8.86 | 8.85 | 8.85 | 8.83 | 8.81 | 8.85 | 8.85 | 9.16 |
| 22 | 8.83 | 9.07 | 8.86 | 8.87 | 8.86 | 8.85 | 8.84 | 8.83 | 8.81 | 8.85 | 8.85 | 9.15 |
| 23 | 8.83 | 8.86 | 8.86 | 8.86 | 8.86 | 8.85 | 8.85 | 8.83 | 8.81 | 9.09 | 8.85 | 9.12 |
| 24 | 8.84 | 8.86 | 8.86 | 8.86 | 8.86 | 8.85 | 8.84 | 8.83 | 8.83 | 9.10 | 8.85 | 9.13 |
| 25 | 8.83 | 8.86 | 8.85 | 8.85 | 8.86 | 8.85 | 8.85 | 8.84 | 8.84 | 9.11 | 8.85 | 9.03 |
| 26 | 8.83 | 8.86 | 9.03 | 8.85 | 8.86 | 8.85 | 8.84 | 8.82 | 8.84 | 9.03 | 8.85 | 8.88 |
| 27 | 8.83 | 8.98 | 9.20 | 8.86 | 8.86 | 8.85 | 8.84 | 8.82 | 8.84 | 8.86 | 8.85 | 8.86 |
| 28 | 8.83 | 9.20 | 9.20 | 8.86 | 8.86 | 8.85 | 8.84 | 8.82 | 9.14 | 8.84 | 8.85 | 8.86 |
| 29 | 8.85 | 9.20 | 9.20 | 8.86 | --- | 8.84 | 8.84 | 8.81 | 9.88 | 8.84 | 8.85 | 8.86 |
| 30 | 8.85 | 9.20 | 9.20 | 8.86 | --- | 8.84 | 8.84 | 8.81 | 8.99 | 8.84 | 8.86 | 9.03 |
| 31 | 8.85 | --- | 9.19 | 8.85 | --- | 8.84 | --- | 8.81 | --- | 8.84 | 8.87 | --- |
| MEAN | 8.85 | 8.98 | 9.04 | 9.08 | 8.86 | 8.85 | 8.85 | 8.84 | 8.87 | 8.88 | 8.85 | 8.96 |
| MAX | 8.90 | 9.20 | 9.20 | 9.21 | 8.86 | 8.85 | 8.85 | 8.94 | 9.88 | 9.11 | 8.87 | 9.16 |
| MIN | 8.83 | 8.85 | 8.85 | 8.85 | 8.85 | 8.84 | 8.84 | 8.81 | 8.81 | 8.84 | 8.84 | 8.86 |
| MED | 8.85 | 8.86 | 9.18 | 9.20 | 8.86 | 8.85 | 8.85 | 8.84 | 8.82 | 8.85 | 8.85 | 8.87 |

50233000 QUEBRADA PILON AT COLONIA PUERTO REAL, VIEQUES, PR

LOCATION.--Lat 18°06'37", long 65°28'51", Hydrologic Unit 21010006, on left bank, 1.2 mi (1.9 km), southeast of Cerro Sonadora, 1.2 mi (1.9 km) northwest of Esperanza, 0.4 mi (0.6 km) south of junction of Highways 895 and 201.

DRAINAGE AREA.--0.67 mi² (1.74 km²).

WATER-STAGE RECORDS

PERIOD OF RECORD.--July 1991 to current year.

GAGE.--Water-stage recorder. Elevation of gage is 131 ft (40 m), from topographic map.

REMARKS.--Gage-height and precipitation satellite telemetry at station. All gage-heights of 8.20 ft or lower are considered zero flow.

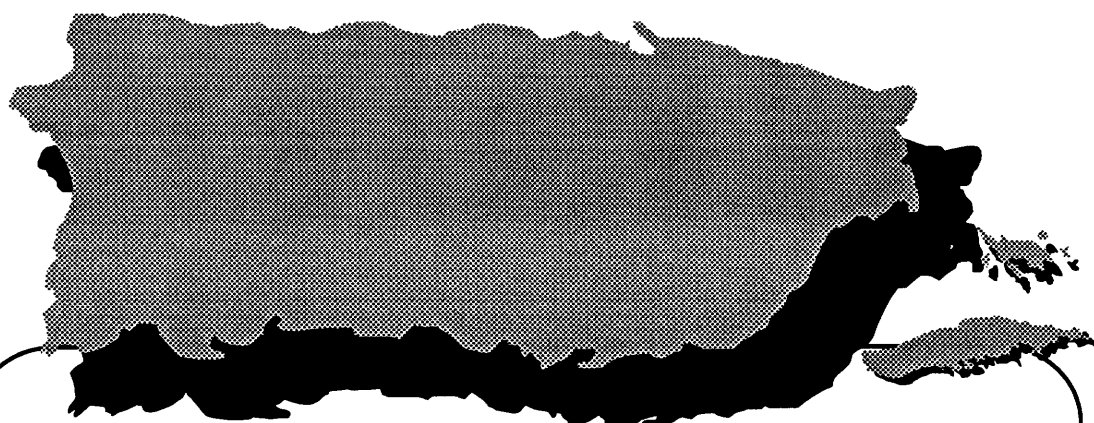
EXTREMES FOR PERIOD OF RECORD.--Maximum gage-height, 9.13 ft (2.783 m), July 23, 1993; minimum, 6.68 ft (2.036 m), Sept. 14, 15, 1993.

EXTREMES FOR CURRENT YEAR.--Maximum gage-height, 9.13 ft (2.783 m), July 23; minimum, 6.68 ft (2.036 m), Sept. 14, 15.

GAGE HEIGHT, FEET, WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993
DAILY MEAN VALUES

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|------|------|------|------|------|------|------|------|------|------|------|------|------|
| 1 | 7.54 | 7.14 | 7.26 | 7.37 | 7.45 | 7.38 | 7.13 | 7.43 | 7.74 | 7.17 | 7.10 | 6.95 |
| 2 | 7.50 | 7.15 | 7.26 | 7.38 | 7.46 | 7.46 | 7.13 | 7.54 | 7.72 | 7.19 | 7.10 | 6.92 |
| 3 | 7.28 | 7.15 | 7.26 | 7.39 | 7.46 | 7.34 | 7.13 | 7.50 | 7.67 | 7.21 | 7.09 | 6.95 |
| 4 | --- | 7.15 | 7.26 | 7.39 | 7.46 | 7.31 | 7.13 | 7.34 | 7.62 | 7.15 | 7.10 | 6.95 |
| 5 | --- | 7.15 | 7.26 | 7.40 | 7.46 | 7.28 | 7.14 | 7.26 | 7.54 | 7.13 | 7.10 | 7.11 |
| 6 | --- | 7.17 | 7.26 | 7.40 | 7.46 | 7.26 | 7.14 | 7.23 | 7.45 | 7.11 | 7.10 | 7.07 |
| 7 | --- | 7.11 | 7.26 | 7.40 | 7.46 | 7.23 | 7.14 | 7.25 | 7.38 | 7.18 | 7.10 | 7.03 |
| 8 | --- | 6.98 | 7.26 | 7.40 | 7.46 | 7.22 | 7.14 | 7.67 | 7.32 | 7.11 | 7.11 | 6.99 |
| 9 | --- | 6.94 | 7.26 | 7.40 | 7.46 | 7.21 | 7.14 | 7.67 | 7.29 | 7.07 | 7.10 | 6.95 |
| 10 | --- | 6.96 | 7.25 | 7.40 | 7.47 | 7.20 | 7.14 | 7.67 | 7.27 | 7.10 | 7.10 | 6.92 |
| 11 | --- | 6.98 | 7.26 | 7.41 | 7.46 | 7.19 | 7.14 | 7.68 | 7.26 | 7.29 | 7.09 | 6.89 |
| 12 | --- | 6.99 | 7.26 | 7.42 | 7.47 | 7.19 | 7.14 | 7.68 | 7.24 | 7.28 | 7.07 | 6.82 |
| 13 | --- | 7.06 | 7.25 | 7.42 | 7.45 | 7.20 | 7.15 | 7.64 | 7.24 | 7.27 | 7.06 | 6.84 |
| 14 | --- | 7.14 | 7.26 | 7.41 | 7.45 | 7.16 | 7.15 | 7.56 | 7.24 | 7.25 | 7.07 | 6.80 |
| 15 | --- | 7.25 | 7.25 | 7.42 | 7.45 | 7.15 | 7.15 | 7.50 | 7.23 | 7.24 | 7.11 | 6.80 |
| 16 | --- | 7.24 | 7.19 | 7.42 | 7.44 | 7.14 | 7.15 | 7.61 | 7.23 | 7.22 | 7.12 | 7.16 |
| 17 | --- | 7.22 | 7.16 | 7.41 | 7.43 | 7.14 | 7.15 | 7.49 | 7.23 | 7.20 | 7.09 | 7.29 |
| 18 | --- | 7.24 | 7.11 | 7.42 | 7.46 | 7.15 | 7.15 | 7.44 | 7.23 | 7.19 | 7.09 | 7.20 |
| 19 | --- | 7.24 | 7.11 | 7.43 | 7.46 | 7.18 | 7.15 | 7.43 | 7.23 | 7.16 | 7.08 | 7.17 |
| 20 | --- | 7.24 | 7.16 | 7.43 | 7.44 | 7.16 | 7.15 | 7.47 | 7.24 | 7.11 | 7.07 | 7.17 |
| 21 | 7.17 | 7.24 | 7.11 | 7.43 | 7.41 | 7.14 | 7.16 | 7.46 | 7.23 | 7.08 | 7.05 | 7.17 |
| 22 | 7.16 | 7.24 | 7.24 | 7.44 | 7.36 | 7.13 | 7.15 | 7.45 | 7.24 | 7.19 | 7.08 | 7.16 |
| 23 | 7.16 | 7.21 | 7.25 | 7.44 | 7.35 | 7.13 | 7.15 | 7.67 | 7.24 | 7.50 | 7.08 | 7.16 |
| 24 | 7.16 | 7.21 | 7.27 | 7.44 | 7.33 | 7.16 | 7.15 | 7.72 | 7.26 | 7.20 | 7.05 | 7.16 |
| 25 | 7.17 | 7.15 | 7.27 | 7.44 | 7.33 | 7.14 | 7.16 | 7.73 | 7.27 | 7.17 | 7.03 | 7.15 |
| 26 | 7.17 | 7.10 | 7.29 | 7.45 | 7.38 | 7.12 | 7.16 | 7.73 | 7.25 | 7.16 | 7.02 | 7.15 |
| 27 | 7.17 | 7.19 | 7.29 | 7.45 | --- | 7.12 | 7.16 | 7.73 | 7.23 | 7.15 | 7.03 | 7.15 |
| 28 | 7.14 | 7.26 | 7.28 | 7.44 | --- | 7.13 | 7.17 | 7.74 | 7.22 | 7.15 | 7.01 | 7.15 |
| 29 | 7.14 | 7.25 | 7.31 | 7.45 | --- | 7.13 | 7.17 | 7.74 | 7.21 | 7.13 | 6.98 | 7.15 |
| 30 | 7.14 | 7.26 | 7.38 | 7.45 | --- | 7.13 | 7.29 | 7.75 | 7.20 | 7.12 | 7.00 | 7.16 |
| 31 | 7.14 | --- | 7.37 | 7.45 | --- | 7.13 | --- | 7.75 | --- | 7.11 | 6.99 | --- |
| MEAN | --- | 7.15 | 7.25 | 7.42 | --- | 7.19 | 7.15 | 7.57 | 7.32 | 7.18 | 7.07 | 7.05 |
| MAX | --- | 7.26 | 7.38 | 7.45 | --- | 7.46 | 7.29 | 7.75 | 7.74 | 7.50 | 7.12 | 7.29 |
| MIN | --- | 6.94 | 7.11 | 7.37 | --- | 7.12 | 7.13 | 7.23 | 7.20 | 7.07 | 6.98 | 6.80 |

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**Discharge at
Parcial-Record Stations
in Puerto Rico**

DISCHARGE AT PARTIAL-RECORD STATIONS

As the number of streams on which streamflow information is likely to be desired far exceeds the number of stream-gaging stations feasible to operate at one time, the Geological Survey collects limited streamflow data at sites other than stream-gaging stations. When limited streamflow data are collected on a systematic basis over a period of years for use in hydrologic analyses, the site at which the data are collected is called a partial-record station. Data collected at these partial-record stations are useable in low-flow or floodflow analyses, depending on the type of data collected. In addition, discharge measurements are made at other sites not included in the partial-record program. These measurements are generally made in times of drought or flood to give better areal coverage to those events. Those measurements and others collected for some special reason are called measurements at miscellaneous sites.

Low-flow partial-record stations

Measurements of streamflow in the areas covered by this report made at low-flow partial-record stations are given in the following table. These measurements were made during periods of base flow when streamflow is primarily from ground-water storage. These measurements, when correlated with the simultaneous discharge of nearby stream when continuous records are available, will give a picture of the low-flow potentiality of stream.

Discharge measurements made at low-flow partial-records stations during water year 1993

PUBLICATION RECORD

| STATION NUMBER | STATION NAME | LOCATION AND BASIN | DRAINAGE AREA mi ² (km ²) | DATE | TIME | STREAM- FLOW ft ³ /s (m ³ /s) |
|---------------------------|--------------------------------------|--|---|--------------------|--------------|--|
| Río Melanía basin | | | | | | |
| 50095900 | Quebrada Melanía near Jobos, PR | Lat 17°57'51", long 66°59'30", Hydrologic Unit 21010004, 0.6 mi (1.0 km) upstream from bridge on Highway 3. | 2.75 (7.12) | 3/09/93 4/27/93 | 1320 1220 | 0.25 (0.007) --- |
| 50097000 | Quebrada Cimarrona near Jobos, PR | Lat 17°59'18", long 66°10'59", Hydrologic Unit 21010004, at Barrio Pozo Hondo, 2.4 mi (3.7 km) north from Puerto de Jobos, and 4.0 mi (6.4 km) northwest from Plaza de Guayama. | 3.09 (8.00) | 3/09/93 4/27/93 | 1300 1240 | 0.00 0.00 |
| Río Seco basin | | | | | | |
| 50097800 | Río Seco near Central Guamaní, PR | Lat 17°58'06", long 66°10'52", Hydrologic Unit 21010004, at bridge on Highway 3, 0.2 mi (0.3 km) north of Central Guamaní, and 1.2 mi (1.9 km) northwest of Jobos. | 11.2 (29.0) | 3/09/93 4/27/93 | 1310 1235 | 0.00 0.00 |
| Río Salinas (Nigua) basin | | | | | | |
| 50100200 | Río Lapa near Rabo del Buey, PR | Lat 18°03'36", long 66°14'28", Hydrologic Unit 21010004, at Barrio Lapa on Highway 1, 1.6 mi (2.6 km) upstream from confluence with Río Majada, and 6.2 mi (10 km) southwest from Plaza de Cayey. | 10.0 (25.8) | 3/09/93 4/27/93 | 1040 0735 | 0.79 (0.022) 0.73 (0.021) |
| 50100300 | Río Jájome at Jájome, PR | Lat 18°03'49", long 66°09'38", Hydrologic Unit 21010004, at Barrio Jájome Bajo on Highway 708, 3.5 mi (5.6 km) south from Plaza de Cayey. | 4.56 (11.8) | 3/09/93 4/27/93 | 1215 0915 | 0.94 (0.027) 1.10 (0.031) |
| 50100450 | Río Majada at La Plena, PR | Lat 18°02'40", long 66°12'27", Hydrologic Unit 21010004, at Barrio Quebrada Yegua on Highway 712, 2.0 mi (3.2 km) northeast from Albergue Olimpico, and 5.5 mi (8.8 km) southwest from Plaza de Cayey. | 16.7 (43.2) | 3/09/93 4/27/93 | 1125 0825 | 1.24 (0.035) 1.34 (0.038) |
| 50100700 | Río Majada at Rabo del Buey, PR | Lat 18°02'17", long 66°14'27", Hydrologic Unit 21010004, at Barrio Lapa, 0.2 mi (0.3 km) upstream from confluence with Río Lapa, 400 ft upstream from intersection of Highways 1 and 712, and 0.2 mi (0.3 km) northwest from Albergue Olimpico. | 22.2 (57.5) | 3/09/93 4/27/93 | 1115 0810 | --- --- |

DISCHARGE AT PARTIAL-RECORD STATIONS
Low-flow partial-record stations--Continued

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| STATION NUMBER | STATION NAME | LOCATION AND BASIN | DRAINAGE AREA mi ² (km ²) | DATE | TIME | STREAM FLOWS ft ³ /s (m ³ /s) |
|-------------------|----------------------------------|--|---|------------------------|------------------|--|
| 50102000 | Río Salinas at Salinas, PR | Lat 17°58'42", long 66°18'17", Hydrologic Unit 21010004, at Bridge on Highway 1, and 0.4 mi (0.6 km) west from Plaza de Salinas. Río Jueyes basin | 52.4 (136) | 3/09/93 4/27/93 | 1315 1300 | --- 0.00 |
| 50102400 | Río Jueyes at Río Jueyes, PR | Lat 18°01'17", long 66°19'51", Hydrologic Unit 21010004, at Barrio Río Jueyes on Highway 154, 1.3 mi (2.1 km) upstream from Highway 52, and 4.5 mi (7.2 km) southeast from Plaza de Coamo. | 3.50 (9.06) | 3/10/93 4/28/93 | 1005 0950 | 0.19 (0.005) 0.14 (0.004) |
| 50103000 | Río Jueyes near Jauca, PR | Lat 17°58'45", long 66°20'20", Hydrologic Unit 21010004, at bridge on Highway 1, 1.8 mi (2.9 km) east of Jaucas, and 2.7 mi (4.3 km) west from Plaza de Salinas. Río Coamo basin | 8.56 (22.2) | 3/10/93 4/28/93 | 1035 1020 | 0.00 0.00 |
| 50104000 | Río Coamo near Pasto, PR | Lat 18°07'08", long 66°21'52", Hydrologic Unit 21010004, at Barrio Pasto on Highway 555, 2.6 mi (4.2 km) northwest from Plaza de Coamo. | 9.05 (23.4) | 3/11/93 4/29/93 | 0725 1320 | 5.11 (0.145) 30.6 (0.866) |
| 50105400 | Río Cuyón at La Guava, PR | Lat 18°05'20", long 66°16'17", Hydrologic Unit 21010004, at Barrio Algarrobo on Highway 717, 1.0 mi (1.6 km) southwest from Cerro Verdún, and 5.6 mi (9.0 km) east from Plaza de Coamo. | 4.33 (11.2) | 3/09/93 4/27/93 | 0950 0700 | 0.63 (0.018) 0.64 (0.018) |
| 50105600 | Río Cuyón near Coamo, PR | Lat 18°05'25", long 66°18'50", Hydrologic Unit 21010004, at Barrio Cuyón on Highway 14, 0.8 mi (1.3 km) southeast from Cerro Santa Ana, and 2.8 mi (4.5 km) northeast from Plaza de Coamo. | 18.1 (46.8) | 3/10/93 4/28/93 | 0645 0650 | 1.40 (0.040) 2.82 (0.080) |
| 50105900 | Quebrada Montería near Coamo, PR | Lat 18°05'13", long 66°21'04", Hydrologic Unit 21010004, at Barrio Pasto at confluence with Río Cuyón, and 0.5 mi (0.8 km) northeast from Plaza de Coamo. | 7.12 (18.4) | 3/10/93 4/28/93 | 0730 0740 | 0.66 (0.019) 0.38 (0.011) |
| 50106100 | Río Coamo at Coamo, PR | Lat 18°05'00", long 66°21'16", Hydrologic Unit 21010004, at Coamo on Highway 14, 500 ft (152 m) downstream from con- fluence with Río Cuyón, and 0.2 mi (0.3 km) east from Plaza de Coamo. | 43.5 (113) | 3/10/93 4/28/93 | 0810 0805 | 6.59 (0.187) 19.0 (0.538) |
| 50106600 | Río de La Mina near Coamo, PR | Lat 18°05'04", long 66°23'22", Hydrologic Unit 21010004, at Barrio Santa Catalina on Highway 150, 2.2 mi (3.5 km) west from Plaza de Coamo. | 2.62 (6.78) | 3/11/92 4/30/93 | 0925 0820 | 0.61 (0.017) 0.58 (0.033) |
| 50106650 | Río del Pasto near Coamo, PR | Lat 18°04'49", long 66°22'32", Hydrologic Unit 21010004, at Barrio San Idelfonso on Highway 150, 1.3 mi (2.1 km) west from Plaza de Coamo. | 1.80 (4.67) | 3/11/93 4/30/93 | 0845 0735 | 0.46 (0.013) 0.44 (0.012) |

DISCHARGE AT PARTIAL-RECORD STATIONS

Low-flow partial-record stations--Continued

| STATION NUMBER | STATION NAME | LOCATION AND BASIN | DRAINAGE AREA mi ² (km ²) | DATE | TIME | STREAM FLOWS ft ³ /s (m ³ /s) |
|------------------------|--|--|---|--------------------|--------------|--|
| 50106700 | Río de La Mina at Coamo, PR | Lat 18°03'56", long 66°22'29", Hydrologic Unit 21010004, at Barrio San Idelfonso on Highway 14, 0.2 mi (0.3 km) upstream from confluence with Río Coamo, and 1.7 mi (2.7 km) from Plaza de Coamo. | 5.88 (15.2) | 3/11/93 4/29/93 | 1050 1225 | 1.22 (0.034) 1.33 (0.038) |
| 50106820 | Río Coamo at Baños de Coamo, PR | Lat 18°02'23", long 66°22'31", Hydrologic Unit 21010004, at Barrio San Idelfonso at the end of Highway 546, 3.3 mi (5.3 km) southwest from Plaza de Coamo. | 58.5 (152) | 3/10/93 4/28/93 | 0910 0900 | 11.8 (0.334) 12.3 (0.348) |
| 50107000 | Río Coamo near Santa Isabel, PR | Lat 17°58'36", long 66°25'10", Hydrologic Unit 21010004, at bridge on Highway 1 at Velázquez, 1.1 mi (1.8 km) northwest from Plaza de Santa Isabel. | 69.3 (179) | 3/10/93 4/29/93 | 1055 0805 | 6.12 (0.173) 76.7 (2.72) |
| Río Descalabrado basin | | | | | | |
| 50107800 | Río Descalabrado near Sanja Blanca, PR | Lat 18°05'24", long 66°24'30", Hydrologic Unit 21010004, at Barrio Santa Catalina on Highway 150, 2.0 mi (3.2 km) southeast from Lago Toa Vaca, and 3.4 mi (5.5 km) northwest from Plaza de Coamo. | 4.27 (11.0) | 3/11/93 4/30/93 | 1010 0855 | 0.54 (0.015) 1.46 (0.041) |
| 50108200 | Río Descalabrado at Las Ollas, PR | Lat 18°02'10", long 66°25'36", Hydrologic Unit 21010004, at Barrio Descalabrado on Highway 536, 0.6 mi (1.0 km) upstream from Highway 52, and 2.2 mi (3.5 km) northwest from Cerro del Muerto. | 13.9 (36.0) | 3/11/93 4/29/93 | 1140 1140 | 0.33 (0.009) 2.47 (0.070) |
| 50108500 | Río Descalabrado near Santa Isabel, PR | Lat 17°58'45", long 66°26'35", Hydrologic Unit 21010004, at bridge on Highway 1, 0.9 mi (1.4 km) upstream from mouth, and 3.1 mi (5.0 km) northwest of Santa Isabel. | 18.1 (46.9) | 3/12/93 4/29/93 | 0745 0900 | 0.70 (0.020) 0.41 (0.012) |
| Río Cañas basin | | | | | | |
| 50109000 | Río Cañas near Juana Díaz, PR | Lat 18°02'41", long 66°27'26", Hydrologic Unit 21010004, at Barrio Río Cañas Arriba on Highway 14, 3.3 mi (5.3 km) east from Plaza de Juana Díaz. | 2.88 (7.47) | 3/11/93 4/29/93 | 1215 1120 | 0.14 (0.004) 0.14 (0.004) |
| 50109500 | Río Cañas near Santa Isabel, PR | Lat 18°59'39", long 66°28'33", Hydrologic Unit 21010004, at bridge on Highway 1, 0.5 mi (0.8 km) from mouth, 0.6 mi (1.0 km) east of Pastillo, and 5.1 mi (8.2 km) northwest from Plaza de Santa Isabel. | 6.38 (16.5) | 3/10/93 4/29/92 | 1210 0930 | 0.00 0.00 |
| Río Jacaguas basin | | | | | | |
| 50110550 | Río Jacaguas at Villalba, PR | Lat 18°07'37", long 66°29'42", Hydrologic Unit 21010004, at Barrio Hato Puerco Arriba upstream from Sewage Water Treatment Plant, 100 ft (30 m) downstream from confluence with Quebrada Achiote, 0.2 mi (0.3 km) southwest from Villalba. | 12.2 (31.7) | 3/16/93 5/06/93 | 0935 1130 | 47.2 (1.337) 101 (2.860) |
| 50110700 | Río Toa Vaca at Pedro García, PR | Lat 18°08'11", long 66°23'47", Hydrologic Unit 21010004, at Barrio Pedro García, 2.1 mi (3.4 km) southeast from intersection of Highways 143 and 155, and 4.1 mi (6.6 km) northeast of Lago Toa Vaca. | 3.09 (8.00) | 3/16/93 5/06/93 | 0700 1340 | 0.52 (0.015) 2.55 (0.072) |

DISCHARGE AT PARTIAL-RECORD STATIONS

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Low-flow partial-record stations--Continued

| STATION NUMBER | STATION NAME | LOCATION AND BASIN | DRAINAGE AREA mi ² (km ²) | DATE | TIME | STREAM FLOWS ft ³ /s (m ³ /s) |
|-------------------|---|--|---|--------------------|--------------|--|
| 50110900 | Río Toa Vaca upstream from Lago Toa Vaca, PR | Lat 18°07'36", long 66°27'25", Hydrologic Unit 21010004, at Barrio Caonillas Arriba on Highway 553, 0.5 mi (0.8 km) upstream from Lago Toa Vaca, and 2.4 mi (3.9 km) east of Villalba. | 14.2 (36.8) | 3/16/93 5/06/93 | 0840 1225 | 3.59 (0.102) 11.4 (0.323) |
| 50111720 | Quebrada Guanábana near Juana Díaz, PR | Lat 18°03'12", long 66°29'02", Hydrologic Unit 21010004, at Barrio Tijeras on Highway 14, 1.5 mi (2.4 km) east from Plaza Juana Díaz. | 1.72 (4.46) | 3/16/93 5/06/93 | 0900 1040 | 0.00 0.00 |
| Río Inabón basin | | | | | | |
| 50112400 | Río Inabón at Real Anón, PR | Lat 18°07'22", long 66°34'20", Hydrologic Unit 21010004, at Barrio Anón on Highway 511, 1.0 mi (1.6 km) northeast from Cerro Santo Domingo, and 4.5 mi (7.2 km) northwest from Lago Guayabal. | 6.00 (15.4) | 3/16/93 5/05/93 | 1300 1225 | 3.31 (0.094) 25.1 (0.711) |
| 50112700 | Río Guayo near Collores, PR | Lat 18°07'24", long 66°33'27", Hydrologic Unit 21010004, at Barrio Collores on Highway 517, about 400 ft (122 m) west from escuela Guaraguao, 0.9 mi (1.4 km) northwest from inter- section of Highways 517 and 512, and 3.5 mi (5.6 km) northwest from Lago Toa Vaca. | 1.67 (4.34) | 3/16/93 5/06/93 | 1110 0925 | 1.18 (0.033) 3.90 (0.110) |
| 50112750 | Quebrada Indalecia at Collores, PR | Lat 18°06'33", long 66°32'20". Hydrologic Unit 21010004, at Barrio Collores, 200 ft (61 m) upstream from conflu- ence with Río Guayo, 0.9 mi (1.4 km) northeast of Cerro Agustinillo, and 2.2 mi (3.5 km) northwest of Lago Guayabal. | 3.52 (9.11) | 3/16/93 5/06/93 | 1045 0850 | 0.02 (0.001) 0.38 (0.011) |
| 50112800 | Río Guayo upstream from Diversion at Collores, PR | Lat 18°05'10", long 66°32'24", Hydrologic Unit 21010004, at Barrio Collores, 2.1 mi (3.4 km) southwest from Lago Guayabal, and 3.1 mi (5.0 km) northwest from Plaza de Juana Díaz. | 9.55 (24.7) | 3/16/93 5/05/93 | 1200 1345 | 1.92 (0.054) 10.0 (0.283) |
| Río Bucaná basin | | | | | | |
| 50113790 | Río San Patricio upstream from Lago Cerrillos, PR | Lat 18°07'12", long 66°36'27", Hydrologic Unit 21010004, at barro Maragüez, 1.5 mi (2.4 km) northwest from Cerro Santo Domingo, 3.6 mi (5.8 km) northwest of Lago Cerrillos, and 7.3 mi (12 km) from Plaza Degetau in Ponce. | 5.84 (15.1) | 3/17/93 5/04/93 | 0900 1315 | 4.80 (0.136) 14.5 (0.411) |
| 50113800 | Río Cerrillos upstream from Lago Cerrillos, PR | Lat 18°07'01", long 66°36'17", Hydrologic Unit 21010004 at barrio Maragüez, 1.3 mi (2.1 km) west of Cerro Santo Domingo, 3.3 mi (5.3 km) northwest of Lago Cerrillos, and 7.2 mi (12 km) from Plaza Degetau, in Ponce. | 11.9 (30.7) | 3/17/93 5/04/93 | 0945 1415 | 8.31 (0.235) 45.6 (1.291) |
| 50114150 | Quebrada Ausubo near Ponce, PR | Lat 18°03'09", long 66°35'08", Hydrologic Unit 21010004, at Barrio Machuelo Arriba, 2.4 mi (3.9 km) west from Coto Laurel, 1.5 mi (2.4 km) south from Lago Cerrillos, and 3.8 mi (6.1 km) northeast from Plaza Degetau, in Ponce. | 1.18 (3.05) | 3/17/93 5/04/93 | 0810 1550 | 0.00 0.00 |

DISCHARGE AT PARTIAL-RECORD STATIONS
Low-flow partial-record stations---Continued

| STATION NUMBER | STATION NAME | LOCATION AND BASIN | DRAINAGE AREA mi ² (km ²) | DATE | TIME | STREAM FLOWS ft ³ /s (m ³ /s) |
|---------------------|--|---|---|--------------------|--------------|--|
| 50114200 | Río Bayagán near Ponce, PR | Lat 18°02'51", long 66°35'12", Hydrologic Unit 21010004, at Barrio Machuelo Arriba, 2.5 mi (4.0 km) west of Coto Laurel, 1.9 mi (3.0 km) south of Lago Cerrillos, and 3.0 mi (4.8 km) northeast from Plaza Degetau, in Ponce. | 3.82 (9.88) | 3/17/93 5/04/93 | 0800 1555 | 0.00 0.00 |
| 50114600 | Río Bucaná at Ponce, PR | Lat 18°00'28", long 66°35'36", Hydrologic Unit 21010004, at bridge on Highway 1, 0.2 mi (0.3 km) east from intersection of Highways 1 and 2, 3.1 mi (5.0 km) upstream from mouth, 1.5 mi (2.4 km) east of Plaza Degetau, in Ponce. | 27.3 (70.7) | 3/17/93 5/04/93 | 0750 0645 | --- --- |
| Río Portugués basin | | | | | | |
| 50114900 | Río Portugués near Tibes, PR | Lat 18°04'26", long 66°38'35", Hydrologic Unit 21010004, at barrio Tibes, 0.5 mi (0.8 km) southwest of Cerro del Diablo, 6.0 mi (9.6 km) northeast from Peñuelas, and 6.2 mi (10 km) north of Ponce. | 7.27 (18.8) | 3/17/93 5/03/93 | 1455 0900 | 4.47 (0.126) 18.7 (0.530) |
| 50115400 | Río Portugués near Ponce, PR | Lat 18°02'27", long 66°36'41", Hydrologic Unit 21010004, at barrio Portugués, 1.0 mi (1.6 km) west of Jardines de Ponce, 0.4 mi (0.6 km) north from confluence with Río Chi- quito, and 1.9 mi (3.0 km) north from Plaza Degetau, in Ponce. | 12.2 (31.6) | 3/17/93 5/03/93 | 1155 1305 | 3.94 (0.112) 32.6 (0.923) |
| 50115450 | Río Chiquito at Portugués, PR | Lat 18°04'11", long 66°37'00", Hydrologic Unit 21010004, at barrio Portugués, 2.1 mi (3.4 km) northwest from Jardines de Ponce, 1.7 mi (2.7 km) southwest of Pico Pinto, and 2.8 mi (4.5 km) north from Plaza Degetau, in Ponce. | 3.12 (8.09) | 3/17/93 5/03/93 | 1245 1130 | 0.34 (0.010) 14.5 (0.411) |
| 50115600 | Río Chiquito near Ponce, PR | Lat 18°02'37", long 66°36'31", Hydrologic Unit 21010004, at barrio Portugués, 0.6 mi (1.0 km) west from Jardines de Ponce, 0.8 mi (1.3 km) south of Cerro El Gato, and 2.1 mi (3.4 km) north from Plaza Degetau, in Ponce. | 4.43 (11.5) | 3/17/93 5/03/93 | 1115 1215 | 0.53 (0.015) 16.0 (0.453) |
| 50116500 | Río Portugués at Hwy 2 By-Pass at Ponce, PR | Lat 17°59'52", long 66°36'52", Hydrologic Unit 21010004, at bridge on Hwy 2 By-Pass, 2.0 mi (3.2 km) upstream from mouth, and 1.1 mi (1.8 km) south of Plaza Degetau, in Ponce. | 20.5 (53.1) | 3/18/93 5/03/93 | 0700 1400 | 4.69 (0.133) 48.9 (1.385) |
| Río Matilde basin | | | | | | |
| 50116800 | Río Cañas at Magueyes, PR | Lat 18°04'26", long 66°39'07", Hydrologic Unit 21010004, at barrio Magueyes, 2.4 mi (3.9 km) southwest from Cerro del Diablo, 4.7 mi (7.6 km) northwest from Peñuelas, and (6.4 km) northwest from Ponce. | 4.00 (10.3) | 3/18/93 5/04/93 | 0850 1105 | 2.29 (0.065) 14.8 (0.419) |
| 50116970 | Río Cañas downstream from Las Américas Ave. PR | Lat 18°00'37", long 66°38'26", Hydrologic Unit 21010004, 0.5 mi (0.8 km) upstream from con- fluence with Río Pastillo. | 8.50 (22.0) | 3/18/93 5/04/93 | 0750 1010 | 9.73 (0.276) 23.0 (0.651) |

DISCHARGE AT PARTIAL-RECORD STATIONS

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Low-flow partial-record stations--Continued

| STATION NUMBER | STATION NAME | LOCATION AND BASIN | DRAINAGE AREA mi ² (km ²) | DATE | TIME | STREAM FLOWS ft ³ /s (m ³ /s) |
|--------------------|--|--|---|--------------------|--------------|--|
| 50117800 | Río Pastillo at Pastillo, PR | Lat 18°02'53", long 66°39'52", Hydrologic Unit 21010004, at Barrio Quebrada Limón on Highway 502, 0.8 mi (1.3 km) northwest of Highways 502 and 132 intersection, and 3.1 mi (5.0 km) northwest from Ponce. | 4.32 (11.2) | 3/31/93 5/05/93 | 0810 0850 | 0.96 (0.027) 4.01 (0.114) |
| 50118300 | Río Pastillo near Ponce, PR | Lat 18°00'31", long 66°38'39", Hydrologic Unit 21010004, at Canas Urbano on bridge, 0.7 mi (1.1 km) downstream from Jardines del Caribe and, 1.1 mi (1.7 km) west of Escuela Dr. Pila, Ponce. | 10.6 (27.6) | 3/30/93 5/05/93 | 1455 0945 | 0.00 1.63 (0.046) |
| 50119000 | Río Matilde at Ponce, PR | Lat 17°59'53", long 66°38'06", Hydrologic Unit 21010004, at Highway 2, 1.1 mi (1.8 km) upstream from mouth. | 20.5 (53.2) | 3/30/93 5/11/93 | 1410 1515 | 10.0 (0.283) 14.3 (0.405) |
| 50119200 | Quebrada del Agua at Playa de Ponce, PR | Lat 17°59'13", long 66°38'22", Hydrologic Unit 21010004, 700 ft (213 m) upstream from con- fluence with Río Matilde. | 6.45 (16.7) | 3/31/93 5/11/93 | 1325 1605 | 0.00 0.00 |
| Río Tallaboa basin | | | | | | |
| 50120550 | Río Tallaboa near Quebrada Ceiba, PR | Lat 18°04'18", long 66°42'03", Hydrologic Unit 21010004, at Barrio Quebrada Ceiba, 0.06 mi (0.1 km) west of Highway 391, 1.2 mi (2.0 km) north of Tallaboa Alta, and 1.7 mi (2.7 km) northeast from Plaza de Peñuelas. | 8.41 (21.8) | 3/31/93 5/11/93 | 0910 1140 | 4.86 (0.138) 21.7 (0.614) |
| 50120700 | Río Guayanés near Peñuelas, PR | Lat 18°04'03", long 66°43'36", Hydrologic Unit 21010004, at Barrio Jaguas on Highway 386, 0.2 mi (0.3 km) northeast of intersection of Highways 386 and 132, 0.6 mi (1.0 km) northeast from Plaza de Peñuelas. | 7.29 (18.9) | 3/31/93 5/11/93 | 1015 1320 | 2.12 (0.060) 70.2 (1.988) |
| 50121000 | Río Tallaboa at Peñuelas, PR | Lat 18°03'02", long 66°43'19", Hydrologic Unit 21010004, 350 ft (107 m) downstream from Highway 132 bridge, 0.6 mi (1.0 km) south of Peñuelas. | 24.2 (62.7) | 3/31/93 5/11/93 | 1105 1240 | 9.77 (0.277) 98.4 (2.787) |
| 50122000 | Río Tallaboa at Tallaboa, PR | Lat 18°00'31", long 66°43'49", Hydrologic Unit 21010004, on bridge at Hacienda Dolores, 700 ft (213 m) upstream from Highway 127, 0.8 mi (1.3 km) north west of Tallaboa, and 7.6 mi (12.2 km) west of Plaza Degetau, in Ponce. | 31.6 (81.7) | 3/31/93 5/11/93 | 1210 1415 | 4.75 (0.134) 87.9 (2.489) |
| Río Macaná basin | | | | | | |
| 50122500 | Río Macaná near Peñuelas, PR | Lat 18°03'40", long 66°46'12", Hydrologic Unit 21010004, at Barrio Macaná on Highways 131 and 132 intersection, 5.5 mi (8.8 km) northeast from Yauco, and 2.8 (4.5 km) northeast from Plaza de Guayanilla. | 2.77 (7.17) | 4/02/93 5/13/93 | 0920 1110 | 0.33 (0.009) 2.07 (0.059) |
| 50122900 | Río Macaná at Magas Arriba, PR | Lat 18°01'00", long 66°45'57", Hydrologic Unit 21010004, 1.8 mi (2.8 km) east of Plaza de Guayanilla, 200 ft (60 m) upstream of Highway 2 bridge, 0.6 mi (1.0 km) from mouth. | 8.98 (23.2) | 3/31/93 5/13/93 | 1300 0900 | 0.00 0.00 |

DISCHARGE AT PARTIAL-RECORD STATIONS

Low-flow partial-record stations--Continued

| STATION NUMBER | STATION NAME | LOCATION AND BASIN | DRAINAGE AREA mi ² (km ²) | DATE | TIME | STREAM FLOWS ft ³ /s (m ³ /s) |
|----------------------|---|--|---|--------------------|--------------|--|
| Río Guayanilla basin | | | | | | |
| 50123100 | Río Guayanilla at Pasto, PR | Lat 18°05'53", long 66°47'38", Hydrologic Unit 21010004, at barrio Pasto, 1.8 mi (2.9 km) southeast from Pico Rodadero, 1.8 mi (2.9 km) west from Cerro El Peligro, and 5.2 mi (8.4 km) north from Plaza de Guayanilla. | 6.45 (16.7) | 4/02/93 5/13/93 | 1000 1150 | 3.25 (0.092) 17.1 (0.484) |
| 50124600 | Río Guayanilla near Central Rufina, PR | Lat 18°01'00", long 66°47'01", Hydrologic Unit 21010004, at Guayanilla, 1.2 mi (1.9 km) upstream from mouth, 0.8 mi (1.3 km) northeast from Central Rufina, and 0.6 mi (1.0 km) southeast from Plaza de Guayanilla. | 23.0 (59.5) | 4/02/93 5/13/93 | 0700 1015 | 0.37 (0.010) 21.4 (0.606) |
| Río Yauco basin | | | | | | |
| 50125000 | Río Yauco near Lago Lucchetti Damsite, PR | Lat 18°06'40", long 66°52'38", Hydrologic Unit 21010004, at Barrio Vegas, 300 ft (91 m) from mouth, 1.5 mi (2.4 km) northwest from spillway, and 5.4 mi (8.7 km) northwest from Plaza de Yauco. | 8.05 (20.8) | 4/01/93 5/12/93 | 1225 1415 | 4.17 (0.118) 21.5 (0.609) |
| 50125500 | Río Naranjo near Lago Lucchetti Damsite, PR | Lat 18°06'20", long 66°51'37", Hydrologic Unit 21010004, at Barrio Naranjo on Hwy 128, 0.3 mi (0.5 km) from mouth, and 0.9 mi (1.4 km) from spillway. | 1.92 (4.97) | 4/01/93 5/12/93 | 1150 1330 | 0.54 (0.015) 3.41 (0.097) |
| 50125600 | Quebrada Grande near Lago Lucchetti Damsite, PR | Lat 18°06'20", long 66°50'56", Hydrologic Unit 21010004, at Barrio Naranjo, 0.6 mi (1.0 km) west from Hacienda Roig, 0.9 mi (1.4 km) from mouth, and 1.3 mi (2.1 km) from spillway. | 2.83 (7.33) | 4/01/93 5/12/93 | 1105 1255 | 1.11 (0.031) 4.79 (0.136) |
| 50125860 | Río Duey at Duey, PR | Lat 18°05'44", long 66°50'06", Hydrologic Unit 21010004, at Barrio Duey, 0.8 mi (1.3 km) southeast from Hacienda Roig, 1.2 mi (1.9 km) east of Lago Lucchetti, and 4.1 mi (6.6 km) from Plaza de Yauco. | 4.55 (11.8) | 4/01/93 5/12/93 | 1015 1210 | 2.92 (0.083) 10.1 (0.286) |
| Río Loco basin | | | | | | |
| 50128450 | Quebrada Grande upstream from Lago Loco, PR | Lat 18°03'45", long 66°53'10", Hydrologic Unit 21010004, at Barrio Almácigo Alto, 800 ft (244 m) upstream of confluence with Río Loco, 1.2 mi (1.9 km) north of spillway, and 3.0 mi (4.8 km) northwest from Plaza de Yauco. | 2.72 (7.03) | 4/01/93 5/12/93 | 0905 1030 | 0.66 (0.019) 5.80 (0.164) |
| 50128500 | Río Loco upstream from Lago Loco, PR | Lat 18°03'22", long 66°53'08", Hydrologic Unit 21010004, at barrio Susúa Alta, 0.2 mi (0.3 km) upstream from Lago Loco, 1.9 mi (3.0 km) north- east of Cerro La Torre, and 5.2 mi (8.4 km) southeast from Plaza de Sabana Grande. | 7.66 (19.8) | 4/01/93 5/12/93 | 0815 1105 | 1.56 (0.044) 15.7 (0.445) |
| 50129200 | Quebrada Susúa at Palomas, PR | Lat 18°01'19", long 66°52'28", Hydrologic Unit 21010004, at Highway 2 bridge, 0.5 mi (0.8 km) north of Palomas, and 1.9 mi (3.1 km) southwest of Yauco. | 3.23 (8.37) | 4/02/93 5/12/93 | 0835 0945 | 0.24 (0.007) 0.46 (0.013) |

DISCHARGE AT PARTIAL-RECORD STATIONS
Low-flow partial-record stations--Continued

| STATION NUMBER | STATION NAME | LOCATION AND BASIN | DRAINAGE AREA mi ² (km ²) | DATE | TIME | STREAM FLOWS ft ³ /s (m ³ /s) |
|---------------------|--|---|---|--------------------|--------------|--|
| Río Guanajibo basin | | | | | | |
| 50130400 | Río Grande near Sabana Grande, PR | Lat 18°05'53", long 66°56'18", Hydrologic Unit 21010003, at Barrio Rín on Highway 364, 0.5 mi (0.8 km) northeast from Capilla del Pozo de la Virgen, and 1.8 mi (2.9 km) northeast from Plaza de Sabana Grande. | 6.45 (16.7) | 3/25/93 5/20/93 | 1410 1330 | 1.52 (0.043) 4.74 (0.134) |
| 50130500 | Río Guanajibo at La Pica, PR | Lat 18°04'11", long 66°57'29", Hydrologic Unit 21010003, at Barrio Rayo on Highway 2, 1.0 mi (1.6 km) north from Cerro de los Bonelli, and 0.8 mi (1.3 km) southeast from Plaza de Sabana Grande. | 14.7 (38.2) | 3/25/93 5/20/93 | 1315 1230 | 3.50 (0.099) 9.48 (0.268) |
| 50130800 | Río Flores near Sabana Grande, PR | Lat 18°04'02", long 66°58'25", Hydrologic Unit 21010003, at Barrio Santana on Highway 2, 0.2 mi (0.3 km) east from intersection of Highways 2 and 363, and 0.9 mi (1.4 km) west from Plaza de Sabana Grande. | 1.98 (5.13) | 3/25/93 5/20/93 | 1300 1125 | 0.00 0.80 (0.023) |
| 50131010 | Río Cruces near Sabana Grande, PR | Lat 18°04'54", long 66°58'37", Hydrologic Unit 21010003, at Barrio Santana on Highway 2, 400 ft (122 m) west from intersection of Highways 2 and 363, 1.1 mi (1.8 km) west from Plaza de Sabana Grande. | 4.68 (12.1) | 3/25/93 5/20/93 | 1220 1045 | 1.78 (0.050) 3.23 (0.091) |
| 50131800 | Río Cupeyes near San Germán, PR | Lat 18°04'48", long 67°00'24", Hydrologic Unit 21010003, at Barrio Guamá, 0.2 mi (0.3 km) downstream of Highway 2, and 2.5 mi (4.0 km) east from Plaza de San Germán. | 4.16 (10.8) | 3/25/93 5/20/93 | 1130 1000 | 2.00 (0.057) 3.16 (0.089) |
| 50132010 | Río Guanajibo below San Germán, PR | Lat 18°05'28", long 67°02'38", Hydrologic Unit 21010003, 1,500 ft (457 m) downstream from Highway 360 bridge, 0.5 mi (0.8 km) from Plaza de San Germán. | 36.1 (93.5) | 3/24/93 5/19/93 | 1240 1345 | 8.30 (0.235) 19.1 (0.541) |
| 50133000 | Río Caín near San Germán, PR | Lat 18°06'06", long 67°02'26", Hydrologic Unit 21010003, at Barrio Caín on Highway 361, 600 ft (183 m) upstream from Highway 2, and 1.3 mi (2.1 km) north of Plaza de San Germán. | 6.32 (16.4) | 3/25/93 5/20/93 | 1040 0915 | 0.82 (0.023) 1.05 (0.030) |
| 50133800 | Río Duey near Rosario, PR | Lat 18°08'57", long 67°03'15", Hydrologic unit 21010003, at Barrio Duey Alto, 200 ft (61 m) downstream from Highway 348, 100 ft (30 m) downstream from confluence with Río Nueve Pasos, and 2.0 mi (3.2 km) southeast from Plaza de Rosario. | 4.17 (10.8) | 3/23/93 5/18/93 | 1125 1115 | 1.76 (0.050) 2.61 (0.074) |
| 50134600 | Río Hoconuco near San Germán, PR | Lat 18°07'08", long 67°04'27", Hydrologic Unit 21010003, at Barrio Hoconuco Bajo, 0.2 mi (0.3 km) downstream from Highway 358, 200 ft upstream from confluence with Río Duey, and 3.2 mi (5.1 km) northwest from Plaza de San Germán. | 5.18 (13.4) | 3/25/93 5/20/93 | 0940 0830 | 1.07 (0.030) 0.81 (0.023) |
| 50135000 | Río Hoconuco (Duey) near San Germán, PR | Lat 18°07'10", long 67°04'48", Hydrologic Unit 21010003, at Barrio Duey Bajo, 200 ft (61 m) downstream of Highway 2, and 3.4 mi (5.5 km) northwest from San Germán Plaza. | 13.2 (34.3) | 3/24/93 5/18/93 | 1335 1405 | 3.05 (0.086) 3.26 (0.092) |

DISCHARGE AT PARTIAL-RECORD STATIONS

Low-flow partial-record stations--Continued

| STATION NUMBER | STATION NAME | LOCATION AND BASIN | DRAINAGE AREA mi ² (km ²) | DATE | TIME | STREAM FLOWS ft ³ /s (m ³ /s) |
|-----------------------|---|---|---|--------------------|--------------|--|
| 50135700 | Río Maricao at Maricao, PR | Lat 18°11'22", long 66°59'37", Hydrologic Unit 21010003, at Barrio Maricao Afuera on Highway 357, 0.4 mi (0.6 km) east of Hacienda San Antonio, and 1.0 mi (1.6 km) northwest from Plaza de Maricao. | 3.80 (9.85) | 3/23/93 5/18/93 | 0905 0900 | 3.66 (0.104) 7.08 (0.200) |
| 50135800 | Río Rosario at Las Vegas, PR | Lat 18°11'13", long 67°01'52", Hydrologic Unit 21010003, at Barrio Montoso on Highway 119, 0.1 mi (0.2 km) southeast from intersection of Highways 119 and 105, and 3.6 (5.8 km) northeast of Plaza de Rosario. | 8.33 (21.6) | 3/23/93 5/18/93 | 0805 0800 | 8.35 (0.236) 20.0 (0.566) |
| 50136400 | Río Rosario near Hormigueros, PR | Lat 18°09'36", long 67°05'08", Hydrologic Unit 21010003, at bridge on Highway 348, 0.5 mi (0.8 km) Southwest from Plaza de Rosario. | 18.3 (47.4) | 3/23/93 5/18/93 | 1230 1220 | 13.8 (0.391) 35.3 (1.000) |
| 50136500 | Río Rosario at Hwy 2 near Hormigueros, PR | Lat 18°07'35", long 67°05'39", Hydrologic Unit 21010003, at Barrio Benavente on Highway 2, 2.7 mi (4.3 km) southwest of Rosario, and 2.5 mi (4.0 km) southeast from Plaza de Hormigueros. | 22.8 (58.9) | 3/23/93 5/18/93 | 1335 1315 | 13.4 (0.379) 34.2 (0.968) |
| 50137800 | Río Viejo near Cabo Rojo, PR | Lat 18°06'04", long 67°07'48", Hydrologic Unit 21010003, at Barrio Bajura on Highway 103, 1.0 mi (1.6 km) northeast of intersection with Highway 102, and 1.4 mi (2.2 km) from Plaza de Cabo Rojo. | 12.3 (31.9) | 3/24/93 5/19/93 | 1055 1205 | 2.69 (0.076) 1.66 (0.047) |
| Quebrada Maga basin | | | | | | |
| 50138100 | Quebrada Maga near Guanajibo, PR | Lat 18°09'18", long 67°08'07", Hydrologic Unit 21010003, at Barrio Guanajibo, 0.3 mi (0.5 km) southeast from Mayagüez Mall, and 1.2 mi (1.9 km) northwest of Plaza de Hormigueros. | 0.76 (1.96) | 3/23/93 5/19/93 | 1500 1500 | 0.00 0.00 |
| Río Hondo basin | | | | | | |
| 50138200 | Río Hondo near Guanajibo, PR | Lat 18°09'45", long 67°09'00", Hydrologic Unit 21010003, at Barrio Guanajibo on Highway 114, 1.8 mi (2.9 km) east of Cerro Cornelia, and 2.0 mi (3.2 km) northwest of Plaza de Hormigueros. | 3.16 (8.18) | 3/24/93 5/19/93 | 0805 1015 | 1.42 (0.040) 0.93 (0.026) |
| Quebrada Sábalo basin | | | | | | |
| 50138300 | Quebrada Sábalo near Mayagüez, PR | Lat 18°10'47", long 67°08'58", Hydrologic Unit 21010003, at Barrio Sábalo on Highway 2R, 2.9 mi (4.7 km) northwest of Hormigueros, and 1.7 mi (2.7 km) southwest of Plaza de Mayagüez. | 2.47 (6.40) | 3/24/93 5/19/93 | 0855 0935 | 1.12 (0.032) 1.71 (0.048) |
| Río Yagüez basin | | | | | | |
| 50138900 | Río Yagüez at Balboa, PR | Lat 18°12'13", long 67°07'55", Hydrologic Unit 21010003, 1200 ft (366 m) upstream from bridge on Balboa St., and 1.6 mi (2.6 km) upstream from mouth. | 12.2 (31.6) | 3/23/93 5/19/93 | 0640 0830 | 9.40 (0.266) 14.6 (0.413) |

DISCHARGE AT PARTIAL-RECORD STATIONS
Low-flow partial-record stations--Continued

| STATION NUMBER | STATION NAME | LOCATION AND BASIN | DRAINAGE AREA mi ² (km ²) | DATE | TIME | STREAM FLOWS ft ³ /s (m ³ /s) |
|----------------------------|---|--|---|---------|------|--|
| Río Grande de Añasco basin | | | | | | |
| 50140300 | Río Guilarte near Adjuntas, PR | Lat 18°10'58", long 66°46'09", Hydrologic Unit 21010003, at Barrio Guilarte on Highway 131, 0.4 mi (0.6 km) southwest from intersection of Highways 130 and 131, and 4.3 mi (6.9 km) east of Castañer. | 2.62 (6.78) | 3/22/93 | 1300 | 2.73 (0.077) |
| | | | | 5/17/93 | 1200 | 4.19 (0.119) |
| 50140800 | Río Limani near Yahuecas, PR | Lat 18°12'01", long 66°47'50", Hydrologic Unit 21010003, at Barrio Yahuecas, 200 ft (61 m) upstream with Río Guilarte, and 500 ft (152 m) southwest from intersection of Highways 129 and 135. | 7.38 (19.1) | 3/22/93 | 1355 | 6.17 (0.175) |
| | | | | 5/17/93 | 1415 | 14.0 (0.396) |
| 50141400 | Río Guayo at Guayo, PR | Lat 18°10'49", long 66°49'40", Hydrologic Unit 21010003, at Barrio Guayo on Highway 131, 1.0 mi (1.6 km) upstream from Lago Guayo, 0.4 mi (0.6 km) southeast of Castañer. | 4.15 (10.7) | 3/22/93 | 1350 | 4.04 (0.114) |
| | | | | 5/17/93 | 1515 | 9.47 (0.268) |
| 50142000 | Río Blanco at La Torre, PR | Lat 18°18'34", long 66°51'49", Hydrologic Unit 21010003, at Barrio La Torre on Highway 128, 2.7 mi (4.3 km) northwest from Lago Guayo, and 4.5 mi (7.2 km) northwest of Castañer. | 33.2 (86.0) | 3/22/93 | 0954 | 2.20 (0.062) |
| | | | | 5/17/93 | 0802 | 12.1 (0.343) |
| 50142100 | Quebrada de Los Plátanos at Marisol, PR | Lat 18°15'41", long 66°51'22", Hydrologic Unit 21010003, at Barrio Marisol on Highway 128, 0.3 mi (0.5 km) south from intersection of Highways 128 and 129. | 0.57 (1.47) | 3/23/93 | 0923 | 0.25 (0.007) |
| | | | | 5/18/93 | 0842 | 1.99 (0.056) |
| 50142300 | Río Prieto at Indiera Alta, PR | Lat 18°10'07", long 66°51'49", Hydrologic Unit 21010003, at Barrio Indiera Alta on Highway 128, 2.3 mi (3.7 km) southwest from Lago Guayo, and 2.2 mi (3.5 km) southwest of Castañer. | 7.47 (19.3) | 3/23/93 | 0814 | 7.61 (0.216) |
| | | | | 5/18/93 | 0736 | 19.6 (0.555) |
| 50142710 | Río Prieto at Río Prieto, PR | Lat 18°12'06", long 66°53'05", Hydrologic Unit 21010003, at Barrio Río Prieto on Highway 431, 3.7 mi (5.6 km) west of Lago Guayo, and 6.4 mi (10 km) northeast of Plaza de Maricao. | 15.1 (39.0) | 3/22/93 | 0900 | 5.25 (0.149) |
| | | | | 5/17/93 | 0853 | 24.8 (0.702) |
| 50142900 | Río Prieto at Pezuela, PR | Lat 18°15'17", long 66°54'25", Hydrologic Unit 21010003, at Barrio Pezuela, 400 ft (122 m) upstream from confluence with Río Grande de Añasco, and 3.4 mi (5.5 km) southwest from Plaza de Lares. | 26.1 (67.7) | 3/22/93 | 1211 | 10.2 (0.289) |
| | | | | 5/17/93 | 0954 | 29.6 (0.838) |
| 50143000 | Río Grande de Añasco near Lares, PR | Lat 18°15'28", long 66°55'05", Hydrologic Unit 21010003, at bridge on Highway 124, 0.7 mi (1.1 km) from confluence with Río Blanco and Río Prieto, and 3.7 mi (6.0 km) southwest from Plaza de Lares. | 26.3 (68.1) | 3/22/93 | 1112 | 17.7 (0.501) |
| | | | | 5/17/93 | 1026 | 64.8 (1.835) |
| 50143104 | Río Lajas near Maricao, PR | Lat 18°10'54", long 66°57'39", Hydrologic unit 21010003, at Barrio Indiera Fria on Highway 105, 0.3 mi (0.5 km) upstream from confluence with Río Guaba, 0.7 mi (1.1 km) from Plaza de Maricao. | 5.79 (15.0) | 3/24/93 | 0832 | 5.07 (0.144) |
| | | | | 5/19/93 | 0808 | 6.38 (0.181) |

DISCHARGE AT PARTIAL-RECORD STATIONS
Low-flow partial-record stations--Continued

| STATION NUMBER | STATION NAME | LOCATION AND BASIN | DRAINAGE AREA mi ² (km ²) | DATE | TIME | STREAM FLOWS ft ³ /s (m ³ /s) |
|-------------------|--|---|---|--------------------|--------------|--|
| 50143108 | Río Guaba near Maricao, PR | Lat 18°11'02", long 66°57'30", Hydrologic Unit 21010003, at Barrio Bucarabones on Highway 105, 200 ft (61 m) upstream from confluence with Río Lajas, and 1.5 mi (2.4 km) from Plaza de Maricao. | 4.95 (12.8) | 3/24/93 5/19/93 | 0801 0740 | 5.17 (0.146) 10.3 (0.292) |
| 50143150 | Río Bucarabones near Las Marías, PR | Lat 18°13'27", long 66°56'41", Hydrologic Unit 21010003, at Barrio Bucarabones, 400 ft (122 m) upstream from confluence with Río Guaba, and 3.7 mi (5.6 km) northeast from Plaza de Maricao. | 9.19 (23.8) | 3/23/93 5/19/93 | 1150 0952 | 8.55 (0.242) 24.5 (0.694) |
| 50143200 | Río Guaba near Las Marías, PR | Lat 18°13'37", long 66°56'33", Hydrologic Unit 21010003, at Barrio Cerrote on Highway 124, 0.3 mi (0.5 km) downstream from confluence with Río Bucarabones, and 3.9 mi (6.3 km) northeast from Plaza de Maricao. | 25.4 (65.7) | 3/23/93 5/19/93 | 1227 0918 | 15.7 (0.445) 46.6 (1.320) |
| 50143400 | Quebrada Las Cañas at Perchas, PR | Lat 18°16'23", long 66°56'36", Hydrologic Unit 21010003, at Barrio Perchas No 2 on Highway 434, 800 ft (244 m) upstream of confluence with Río Grande de Añasco, and 3.5 mi (5.6 km) from Plaza de Las Marías. | 3.08 (7.98) | 3/26/93 5/21/93 | 0756 1040 | 7.56 (0.214) 13.2 (0.374) |
| 50143500 | Río Mayagüecilla at Las Marías, PR | Lat 18°14'50", long 66°59'05", Hydrologic Unit 21010003, at Barrio Palma Escrita on Highway 124, 2.0 mi (3.2 km) upstream of confluence with Río Grande de Añasco, and 0.7 mi (1.1 km) southeast of Plaza de Las Marías. | 3.30 (8.54) | 3/24/93 5/19/93 | 0935 1031 | 1.70 (0.048) 9.19 (0.260) |
| 50143800 | Río Grande de Añasco near Las Marías, PR | Lat 18°16'41", long 66°58'48", Hydrologic Unit 21010003, at Barrio Guacio on Highway 119, 1.8 mi (2.9 km) northeast from Plaza de Las Marías. | 116 (299) | 3/22/93 5/17/93 | 1336 1155 | 54.8 (1.552) 177 (5.013) |
| 50143900 | Río Arenas at Las Marías, PR | Lat 18°15'10", long 66°59'57", Hydrologic Unit 21010003, at Barrio Maravillas on Highway 119, 0.5 mi (0.8 km) southwest from Plaza de Las Marías. | 2.79 (7.22) | 3/24/93 5/19/93 | 1010 1103 | 3.66 (0.104) 8.39 (0.238) |
| 50144200 | Quebrada Cerro Gordo near Cerro Gordo, PR | Lat 18°17'09", long 66°04'09", Hydrologic Unit 21010003, at Barrio Corcovada, 600 ft (183 m) upstream from confluence with Río Grande de Añasco, 5.7 mi (9.2 km) from Las Marías, and 4.8 mi (7.7 km) east from Plaza de Añasco. | 2.66 (6.89) | 3/23/93 5/18/93 | 1352 1113 | 2.87 (0.081) 1.52 (0.043) |
| 50144900 | Río Humata near El Espino, PR | Lat 18°17'18", long 67°06'24", Hydrologic Unit 21010003, at Barrio Carreras on Highway 109, 0.3 mi (0.5 km) upstream from confluence with Río Grande de Añasco, and 2.4 mi (3.9 km) east from Plaza de Añasco. | 4.86 (12.6) | 3/26/93 5/20/93 | 0956 0903 | 3.01 (0.085) 6.46 (0.183) |
| 50145000 | Río Grande de Añasco at El Espino, PR | Lat 18°16'50", long 67°06'46", Hydrologic Unit 21010003, at Barrio Espino on Highway 406, 400 ft (249 m) east from intersection of Highway 109, and 1.9 mi (3.1 km) from Plaza de Añasco. | 108 (280-384) | 3/22/93 5/17/93 | 1510 1422 | 84.6 (2.396) 220 (6.230) |

DISCHARGE AT PARTIAL-RECORD STATIONS

Low-flow partial-record stations--Continued

| STATION NUMBER | STATION NAME | LOCATION AND BASIN | DRAINAGE AREA mi ² (km ²) | DATE | TIME | STREAM FLOWS ft ³ /s (m ³ /s) |
|-------------------|--|---|---|--------------------|--------------|--|
| 50145400 | Río Casei near Mayagüez, PR | Lat 18°15'18", long 67°04'48", Hydrologic Unit 21010003, at Barrio Legúisamo on Highway 108, 4.6 mi (7.4 km) northeast from Mayagüez, and 4.5 mi (7.2 km) southeast of Plaza de Mayagüez. | 8.17 (21.2) | 3/24/93 5/20/93 | 1206 0730 | 8.07 (0.228) 22.4 (0.634) |
| 50146000 | Río Grande de Añasco at Añasco Arriba, PR | Lat 18°16'31", long 66°07'37", Hydrologic Unit 21010003, at 0.8 mi (1.2 km) south of Añasco and 3.0 mi (4.8 km) from mouth. | 161 (416) | 3/22/93 5/21/93 | 1545 0847 | 95.5 (2.704) 207 (5.862) |
| 50146002 | Río Cañas at Río Cañas Arriba, PR | Lat 18°13'37", long 67°04'01", Hydrologic Unit 21010003, at Barrio Cañas Arriba on Highway 354, 0.2 mi (0.3 km) south of intersection with Highway 355, and 5.1 mi (8.2 km) from Plaza de Mayagüez. | 3.58 (9.26) | 3/24/93 5/19/93 | 1100 1216 | 3.11 (0.088) 8.54 (0.242) |
| 50146005 | Río Cañas at Río Cañas Abajo, PR | Lat 18°14'38", long 67°07'17", Hydrologic Unit, 21010003, at Barrio Río Cañas Abajo on Highway 108, and 3.1 mi (5.0 km) northeast from Plaza de Mayagüez. | 11.2 (29.1) | 3/24/93 5/20/93 | 1248 0840 | 2.70 (0.076) 11.2 (0.317) |
| 50146075 | Río Dagüey near Añasco, PR | Lat 18°17'19", long 67°08'08", Hydrologic Unit 21010003, at Barrio Carreras on Highway 405, 100 ft (30 m) east from intresection with Highway 404, and 0.5 mi (0.8 km) northeast from Mayagüez Plaza. | 1.06 (2.75) | 3/23/93 5/18/93 | 1500 1206 | 0.40 (0.011) 0.47 (0.013) |
| Río Grande basin | | | | | | |
| 50146200 | Río Grande near Rincón, PR | Lat 18°22'06", long 67°13'56", Hydrologic Unit 21010003, at bridge on Highway 115, 1.2 mi (1.9 km) from mouth, and 2.2 mi (3.5 km) northeast of Rincón. | 2.83 (7.33) | 3/25/93 5/20/93 | 1013 1005 | 0.47 (0.013) 0.69 (0.020) |
| Río Ingenio basin | | | | | | |
| 50146300 | Río Ingenio at Jagüey, PR | Lat 18°20'36", long 67°11'52", Hydrologic Unit 21010003, at Barrio Jagüey, 0.3 mi (0.5 km) from Highway 411 intersection, and 2.7 mi (4.3 km) southwest from Plaza de Aguada. | 3.18 (8.22) | 3/25/93 5/20/93 | 1120 1115 | 1.78 (0.050) 2.21 (0.062) |
| 50146400 | Río Ingenio near Aguada, PR | Lat 18°22'48", long 67°12'35", Hydrologic Unit 21010003, at bridge on unimproved road, 0.3 mi (0.5 km) upstream from con- fluence with Río Culebra, 0.7 mi (1.1 km) from mouth of Río Guayabo, and 1.4 mi (2.3 km) west of Aguada. | 7.00 (18.1) | 3/25/93 5/20/93 | 1045 1030 | 2.81 (0.080) 2.89 (0.082) |
| Río Culebra basin | | | | | | |
| 50146600 | Río Culebra near Aguada, PR | Lat 18°22'26", long 67°11'35", Hydrologic Unit 21010003, at bridge on Highway 411, 0.6 mi (1.0 km) south of Aguada, 1.5 mi (2.4 km) upstream from confluence with Río Ingenio, and 1.9 mi (3.1 km) from mouth of Río Guayabo. | 3.75 (9.70) | 3/25/93 5/20/93 | 1202 1158 | 1.94 (0.055) 3.69 (0.104) |

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ANALYSES OF SAMPLES COLLECTED AT WATER-QUALITY PARTIAL-RECORD STATION

Water-quality partial-record stations are particcular sites where chemical-quality, biological and or sediment data are collected systematically over a period of years for use in hydrological analysis. The data are collected usually less than quarterly.

WATER-QUALITY DATA, WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993

| DATE | TIME | DEPTH AT SAMPLE LOC- ATION, TOTAL (FEET) | SPE- CIFIC CON- DUCT- ANCE (US/CM) | PH WATER WHOLE FIELD (STAND- ARD UNITS) | TEMPER- ATURE WATER (DEG C) | TRANS- PAR- ENCY (SECCHI DISK) (IN) | OXYGEN, DIS- SOLVED OXYGEN, DIS- SOLVED (MG/L) | OXYGEN, DIS- SOLVED CENT SATUR- ATION) | COLI- FORM, FECAL, (PER- CENT UM-MF (COLS./ 100 ML) |
|-----------------------------|--|--|---|---|--------------------------------------|--|--|---|--|
| RIO GUAJATACA BASIN | | | | | | | | | |
| 50010720 | LAGO GUAJATACA NO.3 NR MOUTH NR QUEBRADILLAS, PR (LAT 18°22'05"N LONG 066°54'36"W) | | | | | | | | |
| NOV 1992 22... | 0740 | 1.00 | 274 | 7.1 | 26.0 | 104 | 5.8 | 71 | K12 |
| MAR 1993 17... | 0840 | 1.00 | 254 | 7.6 | 26.5 | 19.0 | 11.6 | 150 | 230 |
| JUL 21... | 0835 | 1.00 | 293 | 7.7 | 28.0 | 76.0 | 5.9 | 76 | 410 |
| RIO GRANDE DE ARECIBO BASIN | | | | | | | | | |
| 50025110 | LAGO DOS BOCAS NO.3 AT WEST BRANCH NR UTUADO, PR (LAT 18°19'15"N LONG 066°40'11"W) | | | | | | | | |
| NOV 1992 20... | 0940 | 1.00 | 235 | 6.6 | 26.0 | 17.0 | 2.5 | 31 | 91 |
| MAR 1993 13... | 0910 | 1.00 | 252 | 7.3 | 26.0 | 22.0 | 5.1 | 62 | 200 |
| JUL 24... | 0855 | 1.00 | 231 | 6.9 | 28.5 | 26.0 | 7.1 | 84 | 70 |
| RIO DE LA PLATA BASIN | | | | | | | | | |
| 50039900 | LAGO CARITE NO.3 ON RIO DE LA PLATA NR CAYEY, PR (LAT 18°05'04"N LONG 066°06'03"W) | | | | | | | | |
| NOV 1992 19... | 0945 | 1.00 | 113 | 6.6 | 24.5 | 91.0 | 6.9 | 86 | K7 |
| MAR 1993 18... | 0940 | 1.00 | 116 | 6.5 | 23.5 | 71.0 | 7.5 | 93 | 36 |
| JUL 22... | 0850 | 1.00 | 503 | 7.1 | 27.0 | 54.0 | 8.1 | 100 | 40 |
| 50044400 | LAGO LA PLATA NO.5 NR MOUTH NR NARANJITO, PR (LAT 18°19'33"N LONG 066°12'28"W) | | | | | | | | |
| NOV 1992 18... | 0845 | 1.00 | 280 | 6.9 | 25.5 | 12.0 | 6.8 | 82 | 270 |
| MAR 1993 12... | 0850 | 1.00 | 388 | 7.9 | 26.0 | 37.0 | 6.1 | 75 | K2 |
| JUL 16... | 0850 | 1.00 | 374 | 7.7 | 29.0 | 18.0 | 7.6 | 97 | K15 |
| RIO GRANDE DE LOIZA BASIN | | | | | | | | | |
| 50057500 | LAGO LOIZA NO.4 NR MOUTH NR CAGUAS, PR (LAT 18°16'51"N LONG 066°00'35"W) | | | | | | | | |
| NOV 1992 14... | 0935 | 1.00 | 247 | 6.6 | 25.5 | 12.0 | 3.5 | 42 | K1100 |
| MAR 1993 11... | 1120 | 1.00 | 360 | 7.6 | 27.5 | 36.0 | 8.2 | 100 | K1900 |
| JUL 17... | 0945 | 1.00 | 315 | 6.7 | 30.0 | 43.0 | 4.9 | 64 | 84 |

K = non-ideal count

ANALYSES OF SAMPLES COLLECTED AT WATER-QUALITY PARTIAL-RECORD STATION

WATER-QUALITY DATA, WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993

| DATE | NITRO- GEN, AM- MONIA + ORGANIC TOTAL (MG/L AS N) | NITRO- GEN, TOTAL (MG/L AS N) | NITRO- GEN, TOTAL (MG/L AS NO3) | PHOS- PHORUS TOTAL (MG/L AS P) | CHLOR-A PHYTO- PLANK- TON CHROMO FLUOROM (UG/L) | CHLOR-B PHYTO- PLANK- TON CHROMO FLUOROM (UG/L) | PLANK- TON BIOMASS ASH WT (MG/L) | PLANK- TON BIOMASS DRY WT (MG/L) |
|------|---|---|---|--|---|---|--|--|
|------|---|---|---|--|---|---|--|--|

RIO GUAJATACA BASIN--Continued

50010720 LAGO GUAJATACA NO.3 NR MOUTH NR QUEBRADILLAS, PR (LAT 18°22'05"N LONG 066°54'36"W)

| | | | | | | | | |
|----------|-------|----|----|--------|------|--------|-----|-----|
| NOV 1992 | | | | | | | | |
| 22... | 0.40 | -- | -- | 0.030 | 4.50 | <0.100 | 230 | 240 |
| MAR 1993 | | | | | | | | |
| 17... | 0.50 | -- | -- | 0.020 | 10.0 | 1.40 | 280 | 290 |
| JUL | | | | | | | | |
| 21... | <0.20 | -- | -- | <0.010 | 7.60 | 0.100 | 240 | 250 |

RIO GRANDE DE ARECIBO BASIN--Continued

50025110 LAGO DOS BOCAS NO.3 AT WEST BRANCH NR UTUADO, PR (LAT 18°19'15"N LONG 066°40'11"W)

| | | | | | | | | |
|----------|------|------|-----|-------|------|--------|-----|-----|
| NOV 1992 | | | | | | | | |
| 20... | 0.50 | 0.98 | 4.3 | 0.040 | 2.70 | <0.100 | 250 | 250 |
| MAR 1993 | | | | | | | | |
| 13... | 0.30 | 0.85 | 3.8 | 0.010 | 3.30 | <0.100 | 250 | 260 |
| JUL | | | | | | | | |
| 24... | 0.60 | 0.92 | 4.1 | 0.050 | 13.0 | 0.600 | 250 | 260 |

RIO DE LA PLATA BASIN--Continued

50039900 LAGO CARITE NO.3 ON RIO DE LA PLATA NR CAYEY, PR (LAT 18°05'04"N LONG 066°06'03"W)

| | | | | | | | | |
|----------|-------|------|-----|--------|------|-------|-----|-----|
| NOV 1992 | | | | | | | | |
| 19... | 0.30 | 0.40 | 1.8 | 0.010 | 16.0 | 4.00 | 220 | 220 |
| MAR 1993 | | | | | | | | |
| 18... | <0.20 | -- | -- | <0.010 | 4.80 | 1.20 | 240 | 240 |
| JUL | | | | | | | | |
| 22... | 0.30 | -- | -- | 0.020 | 8.90 | 0.600 | 400 | 410 |

50044400 LAGO LA PLATA NO.5 NR MOUTH NR NARANJITO, PR (LAT 18°19'33"N LONG 066°12'28"W)

| | | | | | | | | |
|----------|------|-----|-----|-------|------|--------|-----|-----|
| NOV 1992 | | | | | | | | |
| 18... | 0.60 | 1.1 | 4.8 | 0.210 | 42.0 | <0.100 | 230 | 240 |
| MAR 1993 | | | | | | | | |
| 12... | 0.40 | -- | -- | 0.040 | 15.0 | 1.50 | 250 | 260 |
| JUL | | | | | | | | |
| 16... | 0.50 | -- | -- | 0.100 | 3.70 | <0.100 | 250 | 260 |

RIO GRANDE DE LOIZA BASIN--Continued

50057500 LAGO LOIZA NO.4 NR MOUTH NR CAGUAS, PR (LAT 18°16'51"N LONG 066°00'35"W)

| | | | | | | | | |
|----------|-----|-----|-----|-------|------|--------|-----|-----|
| NOV 1992 | | | | | | | | |
| 14... | 1.2 | 1.7 | 7.7 | 0.340 | 1.60 | <0.100 | 270 | 280 |
| MAR 1993 | | | | | | | | |
| 11... | 2.2 | 2.6 | 12 | 0.540 | 38.0 | <0.100 | 260 | 260 |
| JUL | | | | | | | | |
| 17... | 1.3 | 1.7 | 7.7 | 0.390 | 2.10 | 0.700 | 260 | 260 |

MISCELLANEOUS STATION ANALYSES

| DATE | TIME | DEPTH AT SAMPLE LOC- ATION, TOTAL (FEET) | SPE- CIFIC CON- DUCT- ANCE (US/CM) | PH WATER WHOLE FIELD (STAND- ARD UNITS) | TEMPER- ATURE WATER (DEG C) | TRANS- PAR- ENCY (SECCHI DISK) (IN) | OXYGEN, DIS- SOLVED (PER- CENT SATUR- ATION) | OXYGEN, DIS- SOLVED (MG/L) | COLI- FORM, FECAL, 0.7 UM-MF (COLS./ 100 ML) | STREP- TOCOCCI FECAL, KF AGAR (COLS. PER 100 ML) |
|---|------|--|---|---|--------------------------------------|--|--|-------------------------------------|--|--|
| RIO GUAJATACA BASIN--Continued | | | | | | | | | | |
| 50010790 LAGO GUAJATACA NO.1 NR DAM NR QUEBRADILLAS, PR (LAT 18°23'56"N LONG 066°55'23"W) | | | | | | | | | | |
| NOV 1992 | | | | | | | | | | |
| 22... | 0820 | 1.00 | <274 | 7.4 | 26.5 | 178 | 6.0 | 74 | K2 | K4 |
| 22... | 0805 | 84.0 | 261 | 6.6 | 24.5 | -- | 0.1 | -- | -- | -- |
| MAR 1993 | | | | | | | | | | |
| 17... | 0910 | 1.00 | 264 | 7.8 | 25.5 | 28.0 | 7.8 | 90 | 54 | 78 |
| 17... | 0915 | 64.0 | 316 | 6.8 | 24.5 | -- | 0.1 | -- | -- | -- |
| JUL | | | | | | | | | | |
| 21... | 0920 | 1.00 | 284 | 8.3 | 28.5 | 60.0 | 8.0 | 100 | 76 | 10 |
| 21... | 0925 | 63.0 | 324 | 7.1 | 26.5 | -- | 2.0 | 21 | -- | -- |
| RIO GRANDE DE ARECIBO BASIN--Continued | | | | | | | | | | |
| 50020050 LAGO GARZAS NO.1 NR DAM NR ADJUNTAS, PR (LAT 18°08'21"N LONG 066°44'35"W) | | | | | | | | | | |
| NOV 1992 | | | | | | | | | | |
| 21... | 1045 | 1.00 | 156 | 6.8 | 23.0 | 54.0 | 6.5 | 81 | 20 | 27 |
| 21... | 1040 | 79.0 | 183 | 6.2 | 20.5 | -- | 0.1 | 2 | -- | -- |
| MAR 1993 | | | | | | | | | | |
| 16... | 1055 | 1.00 | 157 | 7.1 | 24.0 | 44.0 | 7.9 | 100 | 92 | 76 |
| 16... | 1050 | 67.0 | 159 | 6.4 | 20.0 | -- | 0.1 | 1 | -- | -- |
| JUL | | | | | | | | | | |
| 21... | 1410 | 1.00 | 229 | 7.7 | 25.0 | 104 | 5.2 | 67 | K300 | K10 |
| 21... | 1415 | 77.0 | 139 | 6.8 | 21.9 | -- | 2.0 | 7 | -- | -- |
| 50027090 LAGO DOS BOCAS NO.1 NR DAM NR UTUADO, PR (LAT 18°20'09"N LONG 066°40'04"W) | | | | | | | | | | |
| NOV 1992 | | | | | | | | | | |
| 20... | 1010 | 1.00 | 215 | 6.7 | 27.0 | 60.0 | 3.2 | 40 | 54 | K11 |
| 20... | 1000 | 64.0 | 225 | 6.3 | 25.5 | -- | 0.1 | 1 | -- | -- |
| MAR 1993 | | | | | | | | | | |
| 13... | 0945 | 1.00 | 250 | 8.1 | 26.0 | 64.0 | 7.9 | 97 | 20 | 74 |
| 13... | 1010 | 72.0 | 218 | 6.5 | 24.0 | -- | 0.1 | 72 | -- | -- |
| JUL | | | | | | | | | | |
| 24... | 0935 | 1.00 | 223 | 6.8 | 28.5 | 44.0 | 7.6 | 96 | 30 | K1200 |
| 24... | 0930 | 72.0 | 235 | 6.9 | 26.5 | -- | 2.6 | -- | -- | -- |
| RIO DE LA PLATA BASIN--Continued | | | | | | | | | | |
| 50039950 LAGO CARITE NO.1 NR DAM NR CAYEY, P.R. (LAT 18°04'39"N LONG 066°06'19"W) | | | | | | | | | | |
| NOV 1992 | | | | | | | | | | |
| 19... | 1035 | 1.00 | 113 | 6.7 | 24.5 | 65.0 | 7.1 | 89 | 44 | 46 |
| 19... | 1030 | 62.0 | 178 | 6.0 | 22.5 | -- | 0.1 | 1 | -- | -- |
| MAR 1993 | | | | | | | | | | |
| 18... | 1030 | 1.00 | 114 | 7.3 | 23.5 | 80.0 | 8.4 | 100 | K8 | K18 |
| 18... | 1025 | 49.0 | 72 | 6.0 | 21.0 | -- | 0.0 | -- | -- | -- |
| JUL | | | | | | | | | | |
| 22... | 0925 | 1.00 | 558 | 7.2 | 27.0 | 28.0 | 7.7 | 100 | 15 | 400 |
| 22... | 0920 | 52.0 | 319 | 6.4 | 25.5 | -- | 0.0 | -- | -- | -- |
| 50044950 LAGO LA PLATA NO.3 NR DAM NR NARANJITO, PR (LAT 18°20'18"N LONG 066°14'01"W) | | | | | | | | | | |
| NOV 1992 | | | | | | | | | | |
| 18... | 0920 | 1.00 | 309 | 6.6 | 26.0 | 24.0 | 3.2 | 39 | 40 | K680 |
| 18... | 0910 | 68.0 | 305 | 5.8 | 24.0 | -- | 0.1 | 1 | -- | -- |
| MAR 1993 | | | | | | | | | | |
| 12... | 0930 | 1.00 | 306 | 7.7 | <27.0 | 64.0 | 7.2 | 90 | K4 | 14 |
| 12... | 0935 | 48.0 | 158 | 6.7 | 22.5 | -- | 0.1 | -- | -- | -- |
| JUL | | | | | | | | | | |
| 16... | 0935 | 1.00 | 310 | 7.5 | 29.5 | 41.0 | 6.5 | 62 | 10 | 18 |
| 16... | 0930 | 27.0 | 215 | 6.7 | 24.5 | -- | 0.4 | -- | -- | -- |
| RIO GRANDE DE LOIZA BASIN--Continued | | | | | | | | | | |
| 50058800 LAGO LOIZA NO.7 NR DAM NR TRUJILLO ALTO, PR (LAT 18°19'29"N LONG 066°00'47"W) | | | | | | | | | | |
| NOV 1992 | | | | | | | | | | |
| 14... | 0855 | 1.00 | 140 | 6.2 | 25.5 | 4.00 | 2.7 | 33 | 600 | 970 |
| 14... | 0840 | 40.0 | 113 | 5.8 | 24.0 | -- | 0.3 | 4 | -- | -- |
| MAR 1993 | | | | | | | | | | |
| 11... | 1030 | 1.00 | 338 | 7.2 | 27.0 | 41.0 | 5.6 | 70 | 10 | 30 |
| 11... | 1040 | 39.0 | 337 | 7.0 | 26.0 | -- | 0.1 | -- | -- | -- |
| JUL | | | | | | | | | | |
| 17... | 0850 | 1.00 | 266 | 7.0 | 29.5 | 48.0 | 4.8 | 32 | 210 | 770 |
| 17... | 0835 | 42.0 | 215 | 6.4 | 27.4 | -- | 0.2 | -- | -- | -- |

K = non-ideal count

MISCELLANEOUS STATION ANALYSES

| DATE | HARD- NESS TOTAL (MG/L AS CACO3) | HARD- NESS NONCARB WH WAT TOT FLD MG/L AS CACO3 | CALCIUM DIS- SOLVED (MG/L AS CA) | MAGNE- SIUM, DIS- SOLVED (MG/L AS MG) | SODIUM, DIS- SOLVED (MG/L AS NA) | SODIUM AD- SORP- TION RATIO | POTAS- SIUM, DIS- SOLVED (MG/L AS K) | ALKA- LITY WAT WH TOT FET MG/L AS CACO3 | SULFATE DIS- SOLVED (MG/L AS SO4) |
|--|--|---|--|--|--|---|---|--|---|
| RIO GUAJATACA BASIN--Continued | | | | | | | | | |
| 50010790 | LAGO GUAJATACA NO.1 NR DAM NR QUEBRADILLAS, PR (LAT 18°23'56"N LONG 066°55'23"W) | | | | | | | | |
| NOV 1992 | | | | | | | | | |
| 22... | 130 | 7 | 45 | 3.3 | 4.6 | 0.2 | 1.8 | 120 | 8.9 |
| 22... | 140 | 6 | 49 | 3.4 | 5.3 | 0.2 | 2.0 | 130 | 8.5 |
| MAR 1993 | | | | | | | | | |
| 17... | 150 | 12 | 54 | 3.9 | 7.1 | 0.3 | 1.8 | 120 | 10 |
| 17... | 130 | 6 | 45 | 3.7 | 6.2 | 0.2 | 1.8 | 140 | 13 |
| JUL | | | | | | | | | |
| 21... | 120 | 9 | 42 | 3.6 | 5.5 | 0.2 | 1.8 | 120 | 10 |
| 21... | 160 | 7 | 57 | 3.1 | 4.6 | 0.2 | 1.6 | 120 | 10 |
| RIO GRANDE DE ARECIBO BASIN--Continued | | | | | | | | | |
| 50020050 | LAGO GARZAS NO.1 NR DAM NR ADJUNTAS, PR (LAT 18°08'21"N LONG 066°44'35"W) | | | | | | | | |
| NOV 1992 | | | | | | | | | |
| 21... | 68 | 0 | 19 | 4.9 | 6.5 | 0.3 | 1.7 | 50 | <0.10 |
| 21... | 63 | 0 | 18 | 4.5 | 6.0 | 0.3 | 1.3 | 43 | 3.1 |
| MAR 1993 | | | | | | | | | |
| 16... | 60 | 0 | 17 | 4.3 | 6.8 | 0.4 | 1.6 | 72 | 2.6 |
| 16... | 61 | 0 | 17 | 4.5 | 6.0 | 0.3 | 1.5 | 70 | 2.7 |
| JUL | | | | | | | | | |
| 21... | 62 | 0 | 17 | 4.7 | 5.9 | 0.3 | 1.3 | 80 | 3.1 |
| 21... | 61 | 0 | 17 | 4.4 | 5.1 | 0.3 | 1.8 | 80 | 1.4 |
| 50027090 | LAGO DOS BOCAS NO.1 NR DAM NR UTUADO, PR (LAT 18°20'09"N LONG 066°40'04"W) | | | | | | | | |
| NOV 1992 | | | | | | | | | |
| 20... | -- | 3 | <0.02 | <0.01 | <0.20 | 0.5 | 2.6 | 74 | 13 |
| 20... | 80 | 6 | 22 | 6.2 | 11 | 0.5 | 2.4 | 75 | 13 |
| MAR 1993 | | | | | | | | | |
| 13... | 95 | 3 | 26 | 7.4 | 13 | 0.6 | 2.4 | 72 | 15 |
| 13... | 80 | 2 | 22 | 6.1 | 10 | 0.5 | 2.9 | 70 | 12 |
| JUL | | | | | | | | | |
| 24... | 76 | 2 | 20 | 6.3 | 10 | 0.5 | 2.3 | 80 | 12 |
| 24... | 85 | -- | 23 | 6.8 | 11 | 0.5 | 2.1 | 80 | 14 |
| RIO DE LA PLATA BASIN--Continued | | | | | | | | | |
| 50039950 | LAGO CARITE NO.1 NR DAM NR CAYEY, P.R. (LAT 18°04'39"N LONG 066°06'19"W) | | | | | | | | |
| NOV 1992 | | | | | | | | | |
| 19... | 40 | 0 | 9.3 | 4.1 | 8.7 | 0.6 | 1.3 | 27 | 0.20 |
| 19... | 32 | 0 | 6.7 | 3.7 | 9.2 | 0.7 | 1.5 | 30 | 2.9 |
| MAR 1993 | | | | | | | | | |
| 18... | 30 | 0 | 7.5 | 2.8 | 7.7 | 0.6 | 0.80 | 19 | 2.5 |
| 18... | 30 | 0 | 6.4 | 3.5 | 8.5 | 0.7 | 0.90 | 30 | 2.6 |
| JUL | | | | | | | | | |
| 22... | 29 | 0 | 6.2 | 3.3 | 6.0 | 0.5 | 0.90 | 38 | 0.70 |
| 22... | 30 | 0 | 5.7 | 3.8 | 8.5 | 0.7 | 0.80 | 40 | 2.8 |
| 50044950 | LAGO LA PLATA NO.3 NR DAM NR NARANJITO, PR (LAT 18°20'18"N LONG 066°14'01"W) | | | | | | | | |
| NOV 1992 | | | | | | | | | |
| 18... | 120 | 0 | 28 | 11 | 14 | 0.6 | 3.2 | 76 | 4.3 |
| 18... | 120 | 0 | 29 | 12 | 19 | 0.7 | 2.5 | 110 | 15 |
| MAR 1993 | | | | | | | | | |
| 12... | 120 | 6 | 29 | 11 | 17 | 0.7 | 2.9 | 89 | 13 |
| 12... | 56 | 1 | 14 | 5.1 | 9.2 | 0.5 | 2.2 | 43 | 8.2 |
| JUL | | | | | | | | | |
| 16... | 73 | 5 | 18 | 6.8 | 12 | 0.6 | 2.6 | 140 | 10 |
| 16... | 100 | 1 | 25 | 10 | 16 | 0.7 | 2.4 | 150 | 17 |
| RIO GRANDE DE LOIZA BASIN--Continued | | | | | | | | | |
| 50058800 | LAGO LOIZA NO.7 NR DAM NR TRUJILLO ALTO, PR (LAT 18°19'29"N LONG 066°00'47"W) | | | | | | | | |
| NOV 1992 | | | | | | | | | |
| 14... | 32 | 7 | 8.9 | 2.4 | 7.9 | 0.6 | 2.8 | 71 | 7.3 |
| 14... | 34 | 0 | 9.0 | 2.8 | 9.1 | 0.7 | 3.0 | 63 | 9.3 |
| MAR 1993 | | | | | | | | | |
| 11... | 110 | 1 | 27 | 10 | 28 | 1 | 2.9 | 50 | 18 |
| 11... | 110 | 1 | 27 | 10 | 27 | 1 | 3.0 | 44 | 18 |
| JUL | | | | | | | | | |
| 17... | 78 | 3 | 18 | 7.0 | 18 | 0.9 | 2.4 | 98 | 12 |
| 17... | 87 | 0 | 21 | 8.5 | 22 | 1 | 3.4 | 92 | 15 |

MISCELLANEOUS STATION ANALYSES

| DATE | CHLO- RIDE, DIS- SOLVED (MG/L AS CL) | FLUO- RIDE, DIS- SOLVED (MG/L AS F) | SILICA, DIS- SOLVED (MG/L AS SIO ₂) | SOLIDS, SUM OF CONSTI- TUENTS, DIS- SOLVED (MG/L) | RESIDUE TOTAL AT 105 DEG. C, SUS- PENDED (MG/L) | NITRO- GEN, NITRATE TOTAL (MG/L AS N) | NITRO- GEN, NITRITE TOTAL (MG/L AS N) | NITRO- GEN, NO ₂ +NO ₃ TOTAL (MG/L AS N) | NITRO- GEN, AMMONIA TOTAL (MG/L AS N) |
|--|--|--|--|---|---|--|--|---|--|
| RIO GUAJATACA BASIN--Continued | | | | | | | | | |
| 50010790 | LAGO GUAJATACA NO.1 NR DAM NR QUEBRADILLAS, PR (LAT 18°23'56"N LONG 066°55'23"W) | | | | | | | | |
| NOV 1992 | | | | | | | | | |
| 22... | 8.6 | 0.10 | 6.3 | 164 | 1 | -- | <0.010 | <0.050 | 0.030 |
| 22... | 7.4 | 0.10 | 6.3 | 153 | -- | -- | -- | -- | -- |
| MAR 1993 | | | | | | | | | |
| 17... | 10 | 0.10 | 3.7 | 150 | 5 | -- | <0.010 | <0.050 | 0.010 |
| 17... | 10 | 0.10 | 7.2 | 182 | -- | -- | -- | -- | -- |
| JUL | | | | | | | | | |
| 21... | 11 | 0.10 | 1.3 | 142 | 50 | -- | <0.010 | <0.050 | <0.010 |
| 21... | 9.6 | 0.10 | 4.9 | 181 | -- | -- | -- | -- | -- |
| RIO GRANDE DE ARECIBO BASIN--Continued | | | | | | | | | |
| 50020050 | LAGO GARZAS NO.1 NR DAM NR ADJUNTAS, PR (LAT 18°08'21"N LONG 066°44'35"W) | | | | | | | | |
| NOV 1992 | | | | | | | | | |
| 21... | 6.9 | <0.10 | 17 | 100 | 3 | -- | <0.010 | <0.050 | 0.040 |
| 21... | 6.6 | <0.10 | 20 | -- | -- | -- | -- | -- | -- |
| MAR 1993 | | | | | | | | | |
| 16... | 6.4 | <0.10 | 12 | 88 | 2 | -- | <0.010 | <0.050 | 0.020 |
| 16... | 6.4 | <0.10 | 17 | 94 | -- | -- | -- | -- | -- |
| JUL | | | | | | | | | |
| 21... | 6.3 | <0.10 | 15 | 92 | -- | -- | -- | -- | -- |
| 21... | 7.2 | <0.10 | 16 | 97 | 24 | -- | <0.010 | <0.050 | 0.030 |
| 50027090 | LAGO DOS BOCAS NO.1 NR DAM NR UTUADO, PR (LAT 18°20'09"N LONG 066°40'04"W) | | | | | | | | |
| NOV 1992 | | | | | | | | | |
| 20... | 10 | 0.10 | 21 | 137 | 1 | 0.320 | 0.040 | 0.360 | 0.070 |
| 20... | 11 | 0.10 | 22 | -- | -- | -- | -- | -- | -- |
| MAR 1993 | | | | | | | | | |
| 13... | 16 | 0.20 | 21 | 154 | <1 | 0.280 | 0.020 | 0.300 | <0.010 |
| 13... | 13 | 0.10 | 19 | 126 | -- | -- | -- | -- | -- |
| JUL | | | | | | | | | |
| 24... | 13 | 0.10 | 21 | 138 | 11 | 0.210 | 0.010 | 0.220 | 0.010 |
| 24... | 11 | <0.10 | 20 | 124 | -- | -- | -- | -- | -- |
| RIO DE LA PLATA BASIN--Continued | | | | | | | | | |
| 50039950 | LAGO CARITE NO.1 NR DAM NR CAYEY, P.R. (LAT 18°04'39"N LONG 066°06'19"W) | | | | | | | | |
| NOV 1992 | | | | | | | | | |
| 19... | 9.9 | <0.10 | 19 | 74 | 9 | -- | <0.010 | <0.050 | 0.030 |
| 19... | 10 | 0.20 | 20 | 87 | -- | -- | -- | -- | -- |
| MAR 1993 | | | | | | | | | |
| 18... | 9.3 | <0.10 | 17 | 69 | <1 | -- | <0.010 | 0.064 | <0.010 |
| 18... | 8.0 | <0.10 | 15 | 60 | -- | -- | -- | -- | -- |
| JUL | | | | | | | | | |
| 22... | 9.8 | <0.10 | 15 | 67 | 14 | -- | <0.010 | <0.050 | 0.010 |
| 22... | 7.9 | <0.10 | 11 | 58 | -- | -- | -- | -- | -- |
| 50044950 | LAGO LA PLATA NO.3 NR DAM NR NARANJITO, PR (LAT 18°20'18"N LONG 066°14'01"W) | | | | | | | | |
| NOV 1992 | | | | | | | | | |
| 18... | 23 | <0.10 | 19 | 193 | 1 | -- | <0.010 | <0.050 | 0.020 |
| 18... | 19 | 0.10 | 20 | 178 | -- | -- | -- | -- | -- |
| MAR 1993 | | | | | | | | | |
| 12... | 21 | 0.20 | 14 | 176 | <1 | -- | <0.010 | <0.050 | <0.010 |
| 12... | 12 | 0.10 | 14 | 91 | -- | -- | -- | -- | -- |
| JUL | | | | | | | | | |
| 16... | 23 | 0.20 | 16 | 172 | 18 | -- | <0.010 | <0.050 | 0.030 |
| 16... | 15 | 0.10 | 15 | 121 | -- | -- | -- | -- | -- |
| RIO GRANDE DE LOIZA BASIN--Continued | | | | | | | | | |
| 50058800 | LAGO LOIZA NO.7 NR DAM NR TRUJILLO ALTO, PR (LAT 18°19'29"N LONG 066°00'47"W) | | | | | | | | |
| NOV 1992 | | | | | | | | | |
| 14... | 11 | <0.10 | 15 | 80 | 2 | 0.430 | 0.250 | 0.680 | 0.140 |
| 14... | 9.1 | <0.10 | 11 | 65 | -- | -- | -- | -- | -- |
| MAR 1993 | | | | | | | | | |
| 11... | 29 | 0.20 | 21 | 200 | 5 | 0.170 | 0.040 | 0.210 | 0.050 |
| 11... | 28 | 0.10 | 22 | 200 | -- | -- | -- | -- | -- |
| JUL | | | | | | | | | |
| 17... | 21 | 0.20 | 23 | 148 | 20 | 0.120 | 0.140 | 0.260 | 0.040 |
| 17... | 20 | 0.1 | 25 | 170 | -- | -- | -- | -- | -- |

| DATE | NITRO- GEN, ORGANIC TOTAL (MG/L AS N) | NITRO- GEN, AM- MONIA + ORGANIC TOTAL (MG/L AS N) | NITRO- GEN, TOTAL (MG/L AS N) | NITRO- GEN, TOTAL (MG/L AS NO3) | PHOS- PHORUS TOTAL (MG/L AS P) | CHLOR-A PHYTO- PLANK- TON CHROMO FLUOROM (UG/L) | CHLOR-B PHYTO- PLANK- TON CHROMO FLUOROM (UG/L) | PLANK- TON BIOMASS ASH WT (MG/L) | PLANK- TON BIOMASS DRY WT (MG/L) |
|--|--|---|---|---|--|---|---|--|--|
| | RIO GUAJATACA BASIN--Continued | | | | | | | | |
| 50010790 | LAGO GUAJATACA NO.1 NR DAM NR QUEBRADILLAS, PR (LAT 18°23'56"N LONG 066°55'23"W) | | | | | | | | |
| NOV 1992 | | | | | | | | | |
| 22... | 0.27 | 0.30 | -- | -- | 0.020 | 0.700 | <0.100 | 2.0 | 250 |
| 22... | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| MAR 1993 | | | | | | | | | |
| 17... | 0.29 | 0.30 | -- | -- | <0.010 | 2.90 | <0.100 | 400 | 410 |
| 17... | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| JUL | | | | | | | | | |
| 21... | -- | 0.40 | -- | -- | <0.010 | 3.50 | 0.800 | 250 | 250 |
| 21... | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| RIO GRANDE DE ARECIBO BASIN--Continued | | | | | | | | | |
| 50020050 | LAGO GARZAS NO.1 NR DAM NR ADJUNTAS, PR (LAT 18°08'21"N LONG 066°44'35"W) | | | | | | | | |
| NOV 1992 | | | | | | | | | |
| 21... | 0.36 | 0.40 | -- | -- | 0.010 | 2.90 | <0.100 | 240 | 250 |
| 21... | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| MAR 1993 | | | | | | | | | |
| 16... | 0.18 | 0.20 | -- | -- | <0.010 | 2.80 | <0.100 | 250 | 250 |
| 16... | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| JUL | | | | | | | | | |
| 21... | -- | <0.20 | -- | -- | <0.010 | 8.30 | 0.700 | 240 | 240 |
| 21... | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 50027090 | LAGO DOS BOCAS NO.1 NR DAM NR UTUADO, PR (LAT 18°20'09"N LONG 066°40'04"W) | | | | | | | | |
| NOV 1992 | | | | | | | | | |
| 20... | 0.33 | 0.40 | 0.76 | 3.4 | 0.030 | 4.10 | <0.100 | 240 | 250 |
| 20... | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| MAR 1993 | | | | | | | | | |
| 13... | -- | 0.20 | 0.50 | 2.2 | 0.030 | 5.10 | <0.100 | 250 | 260 |
| 13... | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| JUL | | | | | | | | | |
| 24... | 0.29 | 0.30 | 0.52 | 2.3 | 0.010 | 7.50 | 0.400 | 250 | 260 |
| 24... | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| RIO DE LA PLATA BASIN--Continued | | | | | | | | | |
| 50039950 | LAGO CARITE NO.1 NR DAM NR CAYEY, P.R. (LAT 18°04'39"N LONG 066°06'19"W) | | | | | | | | |
| NOV 1992 | | | | | | | | | |
| 19... | 0.37 | 0.40 | -- | -- | 0.010 | 31.0 | 8.40 | 210 | 210 |
| 19... | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| MAR 1993 | | | | | | | | | |
| 18... | -- | <0.20 | -- | -- | <0.010 | 4.60 | 1.20 | 250 | 260 |
| 18... | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| JUL | | | | | | | | | |
| 22... | 0.19 | 0.20 | -- | -- | <0.010 | 4.40 | 1.00 | 410 | 420 |
| 22... | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 50044950 | LAGO LA PLATA NO.3 NR DAM NR NARANJITO, PR (LAT 18°20'18"N LONG 066°14'01"W) | | | | | | | | |
| NOV 1992 | | | | | | | | | |
| 18... | 0.38 | 0.40 | -- | -- | 0.070 | 4.10 | <0.100 | 250 | 250 |
| 18... | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| MAR 1993 | | | | | | | | | |
| 12... | -- | 0.30 | -- | -- | <0.010 | 3.10 | <0.100 | 240 | 240 |
| 12... | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| JUL | | | | | | | | | |
| 16... | 0.27 | 0.30 | -- | -- | <0.010 | 1.20 | 0.300 | 250 | 260 |
| 16... | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| RIO GRANDE DE LOIZA BASIN--Continued | | | | | | | | | |
| 50058800 | LAGO LOIZA NO.7 NR DAM NR TRUJILLO ALTO, PR (LAT 18°19'29"N LONG 066°00'47"W) | | | | | | | | |
| NOV 1992 | | | | | | | | | |
| 14... | 0.66 | 0.80 | 1.5 | 6.6 | 0.210 | 3.40 | <0.100 | 280 | 290 |
| 14... | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| MAR 1993 | | | | | | | | | |
| 11... | 0.45 | 0.50 | 0.71 | 3.1 | 0.120 | 15.0 | <0.100 | 260 | 260 |
| 11... | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| JUL | | | | | | | | | |
| 17... | 0.56 | 0.60 | 0.86 | 3.8 | 0.160 | 5.60 | <0.100 | 260 | 270 |
| 17... | -- | -- | -- | -- | -- | -- | -- | -- | -- |

PESTICIDE ANALYSES OF SAMPLES COLLECTED AT WATER-QUALITY PARTIAL-RECORD STATIONS
WATER-QUALITY DATA, WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993

| DATE | TIME | PCB, TOTAL (UG/L) | ALDRIN, TOTAL (UG/L) | CHLOR- DANE, TOTAL (UG/L) | DDD, TOTAL (UG/L) | DDE, TOTAL (UG/L) | DDT, TOTAL (UG/L) | DI- AZINON, TOTAL (UG/L) | DI- ELDRIN TOTAL (UG/L) | ENDO- SULFAN, TOTAL (UG/L) |
|--|------|--|----------------------------|------------------------------------|-------------------------|-------------------------|-------------------------|-----------------------------------|----------------------------------|-------------------------------------|
| RIO GUAJATACA BASIN--Continued | | | | | | | | | | |
| 50010790 | | LAGO GUAJATACA NO.1 NR DAM NR QUEBRADILLAS, PR (LAT 18°23'56"N LONG 066°55'23"W) | | | | | | | | |
| JUL 21... | 0920 | <0.1 | <0.010 | <0.1 | <0.010 | <0.010 | <0.010 | <0.01 | <0.010 | <0.010 |
| RIO GRANDE DE ARECIBO BASIN--Continued | | | | | | | | | | |
| 50020050 | | LAGO GARZAS NO.1 NR DAM NR ADJUNTAS, PR (LAT 18°08'21"N LONG 066°44'35"W) | | | | | | | | |
| JUL 21... | 1410 | <0.1 | <0.010 | <0.1 | <0.010 | <0.010 | <0.010 | <0.01 | <0.010 | <0.010 |
| 50027090 | | LAGO DOS BOCAS NO.1 NR DAM NR UTUADO, PR (LAT 18°20'09"N LONG 066°40'04"W) | | | | | | | | |
| JUL 24... | 0935 | <0.1 | <0.010 | <0.1 | <0.010 | <0.010 | <0.010 | <0.01 | <0.010 | <0.010 |
| RIO DE LA PLATA BASIN--Continued | | | | | | | | | | |
| 50044950 | | LAGO LA PLATA NO.3 NR DAM NR NARANJITO, PR (LAT 18°20'18"N LONG 066° 01W) | | | | | | | | |
| JUL 16... | 0935 | <0.1 | <0.010 | <0.1 | <0.010 | <0.010 | <0.010 | <0.01 | <0.010 | <0.010 |
| RIO GRANDE DE LOIZA--Continued | | | | | | | | | | |
| 50058800 | | LAGO LOIZA NO.7 NR DAM NR TRUJILLO ALTO, PR (LAT 18°19'29"N LONG 066°00'47"W) | | | | | | | | |
| JUL 17... | 0850 | <0.1 | <0.010 | <0.1 | <0.010 | <0.010 | <0.010 | 0.02 | <0.010 | <0.010 |

PESTICIDE ANALYSES OF SAMPLES COLLECTED AT WATER-QUALITY PARTIAL-RECORD STATIONS
 WATER-QUALITY DATA, WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993

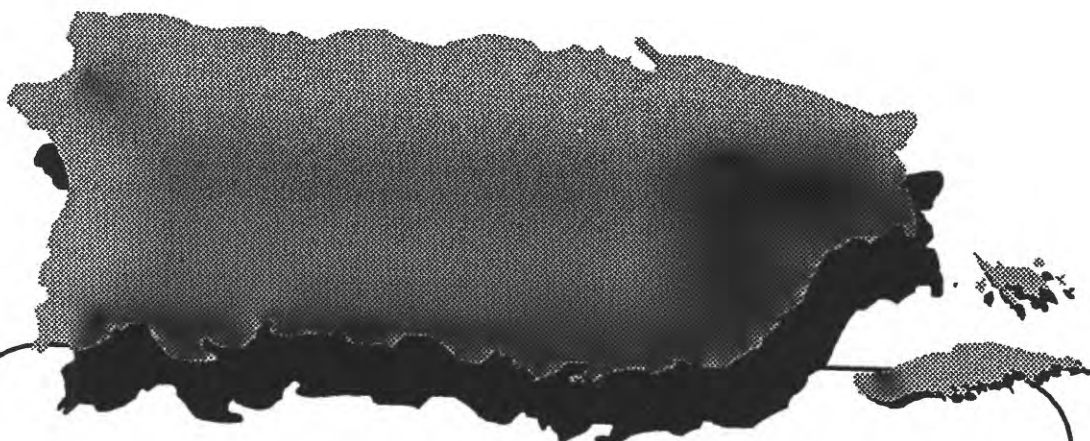
| DATE | ENDRIN WATER UNFLTRD REC (UG/L) | ETHION, TOTAL (UG/L) | HEPTA- CHLOR, TOTAL (UG/L) | HEPTA- CHLOR EPOXIDE TOTAL (UG/L) | LINDANE TOTAL (UG/L) | MALA- THION, TOTAL (UG/L) | METH- OXY- CHLOR, TOTAL (UG/L) | METHYL PARA- THION, TOTAL (UG/L) | MIREX, TOTAL (UG/L) |
|--|---|----------------------------|-------------------------------------|---|----------------------------|------------------------------------|--|--|---------------------------|
| RIO GUAJATACA BASIN--Continued | | | | | | | | | |
| 50010790 | LAGO GUAJATACA NO.1 NR DAM NR QUEBRADILLAS,PR (LAT 18°23'56"N LONG 066°55'23"W) | | | | | | | | |
| JUL 21... | <0.010 | <0.01 | <0.010 | <0.010 | <0.010 | <0.01 | <0.01 | <0.01 | <0.01 |
| RIO GRANDE DE ARECIBO BASIN--Continued | | | | | | | | | |
| 50020050 | LAGO GARZAS NO.1 NR DAM NR ADJUNTAS,PR (LAT 18°08'21"N LONG 066°44'35"W) | | | | | | | | |
| JUL 21... | <0.010 | <0.01 | <0.010 | <0.010 | <0.010 | <0.01 | <0.01 | <0.01 | <0.01 |
| 50027090 | LAGO DOS BOCAS NO.1 NR DAM NR UTUADO,PR (LAT 18°20'09"N LONG 066°40'04"W) | | | | | | | | |
| JUL 24... | <0.010 | <0.01 | <0.010 | <0.010 | <0.010 | <0.01 | <0.01 | <0.01 | <0.01 |
| RIO DE LA PLATA BASIN--Continued | | | | | | | | | |
| 50044950 | LAGO LA PLATA NO.3 NR DAM NR NARANJITO, PR (LAT 18°20'18"N LONG 066° 01W) | | | | | | | | |
| JUL 16... | <0.010 | <0.01 | <0.010 | <0.010 | <0.010 | <0.01 | <0.01 | <0.01 | <0.01 |
| RIO GRANDE DE LOIZA--Continued | | | | | | | | | |
| 50058800 | LAGO LOIZA NO.7 NR DAM NR TRUJILLO ALTO, PR (LAT 18°19'29"N LONG 066°00'47"W) | | | | | | | | |
| JUL 17... | <0.010 | <0.01 | <0.010 | <0.010 | <0.010 | <0.01 | <0.01 | <0.01 | <0.01 |

PESTICIDE ANALYSES OF SAMPLES COLLECTED AT WATER-QUALITY PARTIAL-RECORD STATIONS
WATER-QUALITY DATA, WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993

451

| DATE | PARA- THION, TOTAL (UG/L) | NAPH- THA- LENES, POLY- CHLOR. TOTAL (UG/L) | PER- THANE TOTAL (UG/L) | TOX- APHENE, TOTAL (UG/L) | TOTAL TRI- THION (UG/L) | 2,4-D, TOTAL (UG/L) | 2,4,5-T TOTAL (UG/L) | 2, 4-DP TOTAL (UG/L) | SILVEX, TOTAL (UG/L) |
|--|--|---|----------------------------------|------------------------------------|----------------------------------|---------------------------|----------------------------|----------------------------|----------------------------|
| RIO GUAJATACA BASIN--Continued | | | | | | | | | |
| 50010790 | LAGO GUAJATACA NO.1 NR DAM NR QUEBRADILLAS, PR (LAT 18°23'56"N LONG 066°55'23"W) | | | | | | | | |
| JUL 21... | <0.01 | <0.10 | <0.1 | <1 | <0.01 | 0.06 | <0.01 | <0.01 | <0.01 |
| RIO GRANDE DE ARECIBO BASIN--Continued | | | | | | | | | |
| 50020050 | LAGO GARZAS NO.1 NR DAM NR ADJUNTAS, PR (LAT 18°08'21"N LONG 066°44'35"W) | | | | | | | | |
| JUL 21... | <0.01 | <0.10 | <0.1 | <1 | <0.01 | 0.06 | <0.01 | <0.01 | <0.01 |
| 50027090 | LAGO DOS BOCAS NO.1 NR DAM NR UTUADO, PR (LAT 18°20'09"N LONG 066°40'04"W) | | | | | | | | |
| JUL 24... | <0.01 | <0.10 | <0.1 | <1 | <0.01 | <0.01 | <0.01 | <0.01 | <0.01 |
| RIO DE LA PLATA BASIN--Continued | | | | | | | | | |
| 50044950 | LAGO LA PLATA NO.3 NR DAM NR NARANJITO, PR (LAT 18°20'18"N LONG 066° 01W) | | | | | | | | |
| JUL 16... | <0.01 | <0.10 | <0.1 | <1 | <0.01 | <0.01 | <0.01 | <0.01 | <0.01 |
| RIO GRANDE DE LOIZA--Continued | | | | | | | | | |
| 50058800 | LAGO LOIZA NO.7 NR DAM NR TRUJILLO ALTO, PR (LAT 18°19'29"N LONG 066°00'47"W) | | | | | | | | |
| JUL 17... | <0.01 | <0.10 | <0.1 | <1 | <0.01 | <0.01 | <0.01 | <0.01 | <0.01 |

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**Ground-Water Records
for Puerto Rico**

GROUND-WATER LEVELS

RIO GUAJATACA BASIN

182422067015100. Local number, 165.

LOCATION.--Lat 18°24'22", long 67°01'51", Hydrologic Unit 21010003, 5.60 mi northeast of Moca plaza, 4.70 mi southeast of Aguadilla U.S. Naval Reservation radio antenna, and 1.63 mi northwest of La Virgen del Rosario Church.

Owner: P.R. Aqueduct and Sewer Authority, Name: Saltos # 1 (Mateo Pérez).

AQUIFER.--Cibao Formation, Aguada Limestone.

WELL CHARACTERISTICS.--Drilled production water-table well, diameter 16 in (0.40 m), cased 16 in (0.40 m) 0-40 ft (0-12.2 m), cased 12 in (0.30 m) 40-200 ft (12.2-61.0 m). Depth 200 ft (61.0 m).

INSTRUMENTATION.--Digital water level recorder--60-minute punch.

DATUM.--Elevation of land-surface datum is 689 ft (210 m) above mean sea level.

Measuring point: Hole on pump base, 0.80 ft (0.24 m) above land-surface datum. Prior to November 1985, hole on top of pump base, 1.00 ft (0.30 m) above land-surface datum.

REMARKS.--Recording observation well. Formerly published as 182421067015000.

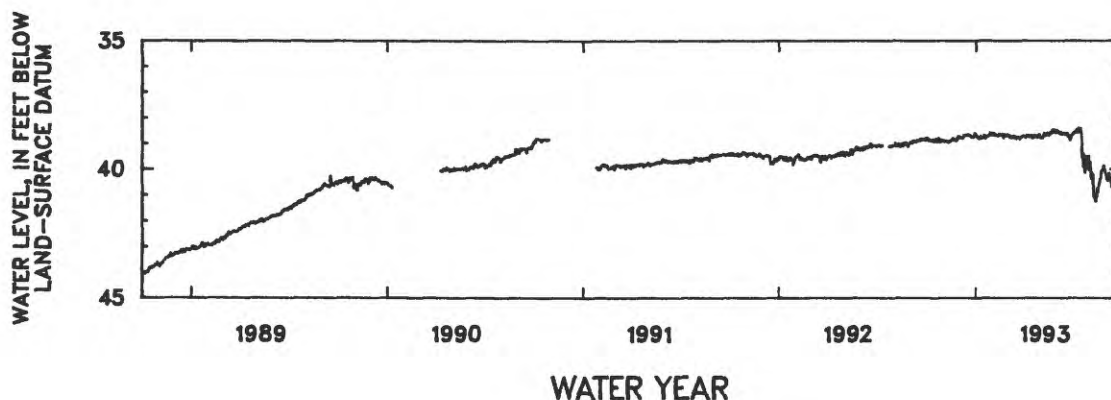
PERIOD OF RECORD.--January 1982 to March 1985, November 1985 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level recorded, 38.36 ft (11.7 m) below land-surface datum, July 12, 1993; lowest water level measured, 70.60 ft (21.52 m) below land-surface datum, June 18, 1982.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993
INSTANTANEOUS OBSERVATION AT 1200

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| 1 | 38.78 | 38.89 | 38.73 | 38.69 | 38.59 | 38.66 | 38.73 | 38.78 | 38.48 | 38.62 | 39.83 | 40.38 |
| 2 | 38.78 | 38.89 | 38.76 | 38.69 | 38.59 | 38.68 | 38.76 | 38.80 | 38.56 | 38.57 | 39.73 | 40.33 |
| 3 | 38.87 | 38.94 | 38.77 | 38.73 | 38.66 | 38.74 | 38.77 | 38.79 | 38.58 | 38.56 | 40.04 | 40.44 |
| 4 | 38.88 | 38.92 | 38.77 | 38.77 | 38.69 | 38.76 | 38.73 | 38.78 | 38.59 | 38.57 | 40.39 | 40.40 |
| 5 | 38.85 | 38.91 | 38.77 | 38.78 | 38.68 | 38.71 | 38.69 | 38.78 | 38.62 | 38.56 | 40.11 | 40.20 |
| 6 | 38.86 | 38.91 | 38.78 | 38.77 | 38.66 | 38.71 | 38.70 | 38.72 | 38.63 | 38.52 | 40.20 | 40.15 |
| 7 | 38.87 | 38.91 | 38.80 | 38.81 | 38.66 | 38.77 | 38.68 | 38.58 | 38.63 | 38.50 | 40.43 | 40.34 |
| 8 | 38.88 | 38.92 | 38.76 | 38.78 | 38.68 | 38.77 | 38.68 | 38.65 | 38.55 | 38.45 | 40.66 | 40.35 |
| 9 | 38.91 | 38.94 | 38.69 | 38.72 | 38.70 | 38.73 | 38.74 | 38.68 | 38.62 | 38.57 | 41.07 | 40.36 |
| 10 | 38.90 | 38.97 | 38.69 | 38.79 | 38.71 | 38.73 | 38.70 | 38.67 | 38.64 | 38.54 | 41.06 | 40.70 |
| 11 | 38.88 | 38.97 | 38.67 | 38.80 | 38.69 | 38.73 | 38.70 | 38.68 | 38.63 | 38.49 | 41.08 | 40.59 |
| 12 | 38.85 | 38.93 | 38.66 | 38.79 | 38.67 | 38.74 | 38.72 | 38.62 | 38.63 | 38.40 | 41.21 | 40.70 |
| 13 | 38.87 | 38.93 | 38.69 | 38.78 | 38.63 | 38.70 | 38.69 | 38.59 | 38.61 | 38.51 | 41.23 | 40.55 |
| 14 | 38.92 | 38.91 | 38.67 | 38.76 | 38.66 | 38.77 | 38.71 | 38.65 | 38.59 | 38.50 | 40.97 | 40.66 |
| 15 | 38.93 | 38.89 | 38.66 | 38.75 | 38.68 | 38.82 | 38.77 | 38.66 | 38.60 | 38.41 | 40.72 | 40.68 |
| 16 | 38.87 | 38.88 | 38.67 | 38.68 | 38.68 | 38.82 | 38.80 | 38.69 | 38.64 | 38.65 | 40.88 | 40.75 |
| 17 | 38.84 | 38.88 | 38.65 | 38.72 | 38.69 | 38.76 | 38.76 | 38.65 | 38.64 | 39.04 | 40.69 | 40.81 |
| 18 | 38.82 | 38.84 | 38.65 | 38.80 | 38.64 | 38.74 | 38.72 | 38.62 | 38.63 | 39.41 | 40.60 | 40.71 |
| 19 | 38.85 | 38.80 | 38.69 | 38.75 | 38.65 | 38.75 | 38.68 | 38.56 | 38.65 | 39.56 | 40.49 | 40.58 |
| 20 | 38.91 | 38.86 | 38.67 | 38.72 | 38.69 | 38.74 | 38.70 | 38.55 | 38.62 | 39.39 | 40.38 | 40.54 |
| 21 | 38.95 | 38.85 | 38.70 | 38.72 | 38.79 | 38.76 | 38.74 | 38.59 | 38.74 | 39.94 | 40.33 | 40.72 |
| 22 | 38.89 | 38.88 | 38.73 | 38.70 | 38.73 | 38.80 | 38.70 | 38.58 | 38.71 | 39.64 | 40.15 | 40.75 |
| 23 | 38.80 | 38.87 | 38.75 | 38.70 | 38.66 | 38.82 | 38.71 | 38.54 | 38.71 | 39.48 | 40.07 | 40.92 |
| 24 | 38.85 | 38.88 | 38.73 | 38.71 | 38.66 | 38.77 | 38.75 | 38.48 | 38.71 | 40.16 | 40.06 | 40.94 |
| 25 | 38.88 | 38.89 | 38.75 | 38.68 | 38.68 | 38.75 | 38.75 | 38.46 | 38.87 | 39.89 | 40.02 | 41.04 |
| 26 | 38.95 | 38.87 | 38.75 | 38.64 | 38.70 | 38.73 | 38.67 | 38.45 | 38.82 | 39.64 | 39.94 | 41.05 |
| 27 | 38.92 | 38.78 | 38.75 | 38.59 | 38.69 | 38.73 | 38.66 | 38.47 | 38.70 | 39.50 | 39.85 | 41.21 |
| 28 | 38.88 | 38.73 | 38.73 | 38.66 | 38.68 | 38.70 | 38.66 | 38.59 | 38.69 | 39.72 | 39.98 | 41.09 |
| 29 | 38.88 | 38.78 | 38.65 | 38.67 | --- | 38.71 | 38.66 | 38.58 | 38.66 | 39.61 | 40.03 | 40.94 |
| 30 | 38.90 | 38.78 | 38.60 | 38.67 | --- | 38.70 | 38.76 | 38.54 | 38.62 | 39.49 | 40.09 | 40.91 |
| 31 | 38.91 | --- | 38.66 | 38.65 | --- | 38.72 | --- | 38.48 | --- | 40.06 | 40.24 | --- |
| MEAN | 38.88 | 38.88 | 38.71 | 38.72 | 38.67 | 38.74 | 38.72 | 38.62 | 38.65 | 39.06 | 40.40 | 40.66 |

WTR YR 1993 MEAN 39.06 HIGHEST 38.36 JULY 12, 1993 LOWEST 41.42 AUG. 12, 1993



GROUND-WATER LEVELS

RIO GUAJATACA BASIN

182647066552400. Local number, 202.

LOCATION.--Lat 18°26'47", long 66°55'24", Hydrologic Unit 21010002, 2.22 mi southeast of Quebradillas plaza, 1.29 mi north of Escuela José de Diego, and 1.99 mi northwest of El Calvario Church. Owner: P.R. Aqueduct and Sewer Authority, Name: Carmelo Barreto García well.

AQUIFER.--Aguada Limestone.

WELL CHARACTERISTICS.--Drilled water-table well, diameter 20 in (0.51 m), cased 20 in (0.51 m) 0-296 ft (0-90.2 m), diameter 13 in (0.33 m), cased 13 in (0.33 m) 0-550 ft (0-167.6 m), perforated 270-529 ft (82.3-161.2 m). Depth 550 ft (167.6 m).

INSTRUMENTATION.--Digital water level recorder--60-minute punch.

DATUM.--Elevation of land-surface datum is about 475 ft (145 m) above mean sea level, from topographic map.

Measuring point: Hole on side of casing, 1.50 ft (0.46 m) above land-surface datum. Prior July 25, 1986, top of shelter floor, 3.30 ft (1.00 m) above land-surface datum.

REMARKS.--Recording observation well.

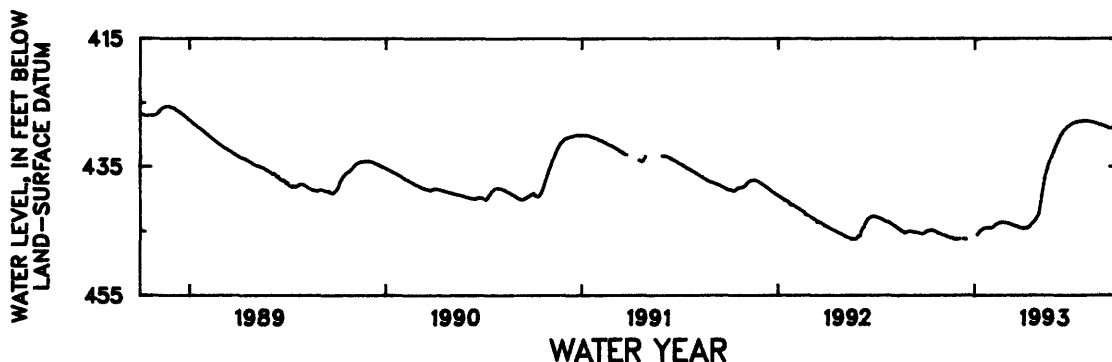
PERIOD OF RECORD.--November 1985 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level recorded, 409.17 ft (124.71 m) below land-surface datum, Sept. 25, 1986; lowest water level recorded, 452.80 ft (138.01 m) below land-surface datum, June 26, 1986.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993
INSTANTANEOUS OBSERVATION AT 1200

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|
| 1 | 445.10 | 445.49 | 446.27 | --- | 444.43 | 443.69 | 444.54 | 441.70 | 431.63 | 428.29 | 427.91 | 428.74 |
| 2 | 445.05 | 445.55 | 446.25 | --- | 444.40 | 443.72 | 444.55 | 441.14 | 431.42 | 428.24 | 427.94 | 428.79 |
| 3 | 445.01 | 445.59 | 446.21 | --- | 444.39 | 443.74 | 444.53 | 440.65 | 431.26 | 428.22 | 427.99 | 428.82 |
| 4 | 444.95 | 445.62 | 446.19 | --- | 444.36 | 443.77 | 444.51 | 440.24 | 431.07 | 428.19 | 427.99 | 428.82 |
| 5 | 444.93 | 445.63 | --- | --- | 444.27 | 443.79 | 444.48 | 439.78 | 430.90 | 428.17 | 427.99 | 428.85 |
| 6 | 444.89 | 445.65 | --- | 445.50 | 444.21 | 443.81 | 444.48 | 439.30 | 430.72 | 428.11 | 427.99 | 428.92 |
| 7 | 444.86 | 445.68 | --- | 445.35 | 444.15 | 443.86 | 444.48 | 438.86 | 430.54 | 428.09 | 427.99 | 428.97 |
| 8 | 444.85 | 445.71 | --- | 445.23 | 444.07 | 443.87 | 444.48 | 438.36 | 430.37 | 428.05 | 428.04 | 429.01 |
| 9 | 444.83 | 445.74 | --- | 445.18 | 444.00 | 443.90 | 444.48 | 437.79 | 430.21 | 428.05 | 428.04 | 429.03 |
| 10 | 444.82 | 445.78 | --- | 445.03 | 443.93 | 443.92 | 444.41 | 437.31 | 430.07 | 428.03 | 428.06 | 429.02 |
| 11 | 444.81 | 445.83 | 446.19 | 444.94 | 443.86 | 443.96 | 444.37 | 436.90 | 429.91 | 428.00 | 428.11 | 429.01 |
| 12 | 444.80 | 445.85 | 446.20 | 444.85 | 443.84 | 443.99 | 444.32 | 436.52 | 429.81 | 427.96 | 428.14 | 428.99 |
| 13 | 444.82 | 445.90 | 446.22 | 444.79 | 443.79 | 444.02 | 444.21 | 436.17 | 429.65 | 427.99 | 428.17 | 428.98 |
| 14 | 444.84 | 445.94 | 446.23 | 444.70 | 443.76 | 444.06 | 444.17 | 435.87 | 429.55 | 427.95 | 428.20 | 428.98 |
| 15 | 444.88 | 445.97 | 446.25 | 444.64 | 443.73 | 444.11 | 444.06 | 435.59 | 429.43 | 427.92 | 428.20 | 428.94 |
| 16 | 444.88 | 446.02 | 446.26 | 444.58 | 443.68 | 444.14 | 443.96 | 435.33 | 429.34 | 427.91 | 428.26 | 428.94 |
| 17 | 444.93 | 446.05 | 446.26 | 444.57 | 443.67 | 444.14 | 443.83 | 435.04 | 429.25 | 427.92 | 428.25 | 428.92 |
| 18 | 444.95 | 446.09 | --- | 444.53 | 443.63 | 444.18 | 443.73 | 434.74 | 429.15 | 427.94 | 428.31 | 428.90 |
| 19 | 444.99 | --- | --- | 444.48 | 443.64 | 444.21 | 443.62 | 434.51 | 429.10 | 427.88 | 428.35 | 428.90 |
| 20 | 445.03 | --- | --- | 444.47 | 443.63 | 444.22 | 443.55 | 434.27 | 429.00 | 427.91 | 428.37 | 428.94 |
| 21 | 445.10 | 446.07 | --- | 444.46 | 443.66 | 444.26 | 443.46 | 434.05 | 428.90 | 427.89 | 428.42 | 428.95 |
| 22 | 445.14 | 446.18 | --- | 444.44 | 443.62 | 444.32 | 443.36 | 433.80 | 428.82 | 427.87 | 428.42 | 428.97 |
| 23 | 445.18 | 446.20 | --- | 444.44 | 443.60 | 444.36 | 443.26 | 433.55 | 428.74 | 427.89 | 428.43 | 428.99 |
| 24 | 445.28 | 446.23 | --- | 444.42 | 443.62 | 444.38 | 443.15 | 433.32 | 428.70 | 427.91 | 428.47 | 429.00 |
| 25 | 445.29 | 446.23 | --- | 444.42 | 443.66 | 444.40 | 443.02 | 433.11 | 428.64 | 427.89 | 428.54 | 429.04 |
| 26 | 445.34 | 446.24 | --- | 444.41 | 443.66 | 444.43 | 442.85 | 432.89 | 428.58 | 427.84 | 428.54 | 429.07 |
| 27 | 445.34 | 446.29 | --- | 444.41 | 443.65 | 444.45 | 442.74 | 432.66 | 428.49 | 427.87 | 428.55 | 429.10 |
| 28 | 445.35 | 446.27 | --- | 444.45 | 443.67 | 444.48 | 442.64 | 432.47 | 428.46 | 427.88 | 428.59 | 429.11 |
| 29 | 445.40 | 446.28 | --- | 444.45 | --- | 444.50 | 442.46 | 432.26 | 428.41 | 427.91 | 428.61 | 429.15 |
| 30 | 445.43 | 446.29 | --- | 444.47 | --- | 444.53 | 442.21 | 432.03 | 428.32 | 427.93 | 428.64 | 429.19 |
| 31 | 445.45 | --- | --- | 444.45 | --- | 444.54 | --- | 431.82 | --- | 427.93 | 428.68 | --- |
| MEAN | 445.05 | 445.94 | 446.23 | 444.68 | 443.88 | 444.12 | 443.80 | 435.87 | 429.61 | 427.99 | 428.26 | 428.97 |

WTR YR 1993 MEAN 438.10 HIGHEST 427.82 JULY 26, 1993 LOWEST 446.34 NOV. 30, 1992



GROUND-WATER LEVELS
RIO GRANDE DE ARECIBO BASIN

182737066370900. Local number, 204.

LOCATION.--Lat 18°27'37", long 66°37'09", Hydrologic Unit 21010002, 5.26 mi west of Barceloneta plaza, 1.58 mi north of Hwy 2 km 63.7, and 3.67 mi southwest of Escuela Agustín Balseiro. Owner: Sucesión Marquez, Name: Gilberto Rivera well.

AQUIFER.--Aymamón Limestone.

WELL CHARACTERISTICS.--Abandoned unused water-table well, diameter 6 in (0.15 m), cased 6 in (0.15 m).

INSTRUMENTATION.--Digital water level recorder--60-minute punch.

DATUM.--Elevation of land-surface datum is 48.0 ft (14.63 m) above mean sea level.

Measuring point: Air hole on pump base, 0.50 ft (0.15 m) above land-surface datum.

REMARKS.--Recording observation well.

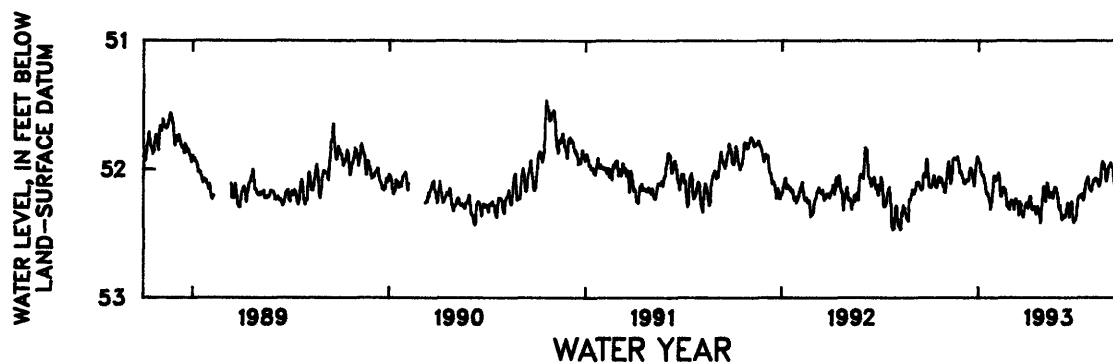
PERIOD OF RECORD.--October 1985 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level recorded, 50.00 ft (15.24 m) below land-surface datum, May 14, 1986; lowest water level recorded, 52.56 ft (16.0 m) below land-surface datum, Apr. 26, 1993.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993
INSTANTANEOUS OBSERVATION AT 1200

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| 1 | 52.13 | 52.14 | 52.05 | 51.94 | 52.09 | 52.27 | 52.27 | 52.14 | 52.30 | 52.39 | 52.12 | 51.97 |
| 2 | 52.14 | 52.11 | 52.07 | 51.95 | 52.07 | 52.26 | 52.28 | 52.13 | 52.28 | 52.36 | 52.10 | 51.96 |
| 3 | 52.14 | 52.06 | 52.07 | 51.95 | 52.07 | 52.24 | 52.30 | 52.14 | 52.33 | 52.31 | 52.08 | 51.95 |
| 4 | 52.14 | 51.98 | 52.10 | 51.99 | 52.08 | 52.25 | 52.28 | 52.22 | 52.36 | 52.28 | 52.09 | 51.97 |
| 5 | 52.14 | 51.96 | 52.11 | 52.02 | 52.05 | 52.26 | 52.24 | 52.24 | 52.39 | 52.23 | 52.08 | 51.98 |
| 6 | 52.12 | 51.94 | 52.11 | 52.02 | 52.03 | 52.25 | 52.21 | 52.25 | 52.39 | 52.21 | 52.07 | 51.98 |
| 7 | 52.12 | 51.97 | 52.11 | 52.04 | 52.03 | 52.27 | 52.21 | 52.15 | 52.38 | 52.21 | 52.07 | 51.99 |
| 8 | 52.08 | 51.98 | 52.10 | 52.05 | 52.05 | 52.31 | 52.22 | 52.10 | 52.37 | 52.21 | 52.09 | 52.02 |
| 9 | 52.06 | 52.07 | 52.08 | 52.04 | 52.08 | 52.27 | 52.27 | 52.11 | 52.36 | 52.20 | 52.09 | 52.09 |
| 10 | 52.05 | 52.11 | 52.08 | 52.06 | 52.15 | 52.24 | 52.31 | 52.14 | 52.37 | 52.21 | 52.08 | 52.11 |
| 11 | 52.09 | 52.10 | 52.09 | 52.07 | 52.21 | 52.23 | 52.31 | 52.19 | 52.37 | 52.22 | 52.11 | 52.11 |
| 12 | 52.12 | 52.07 | 52.09 | 52.10 | 52.21 | 52.24 | 52.31 | 52.21 | 52.36 | 52.20 | 52.12 | 52.08 |
| 13 | 52.13 | 52.03 | 52.09 | 52.11 | 52.20 | 52.26 | 52.29 | 52.22 | 52.34 | 52.19 | 52.13 | 52.03 |
| 14 | 52.14 | 51.92 | 52.05 | 52.13 | 52.16 | 52.25 | 52.29 | 52.21 | 52.32 | 52.22 | 52.12 | 51.97 |
| 15 | 52.14 | 51.92 | 52.02 | 52.18 | 52.15 | 52.27 | 52.29 | 52.20 | 52.29 | 52.24 | 52.10 | 51.92 |
| 16 | 52.13 | 51.91 | 51.99 | 52.19 | 52.14 | 52.28 | 52.31 | 52.18 | 52.26 | 52.22 | 52.07 | 51.86 |
| 17 | 52.08 | 51.91 | 51.99 | 52.18 | 52.16 | 52.36 | 52.33 | 52.18 | 52.31 | 52.19 | 51.97 | 51.84 |
| 18 | 52.07 | --- | 52.00 | 52.19 | 52.18 | 52.30 | 52.35 | 52.18 | 52.33 | 52.15 | 51.95 | 51.85 |
| 19 | 52.06 | --- | 52.01 | 52.21 | 52.15 | 52.25 | 52.32 | 52.23 | 52.37 | 52.11 | 51.94 | 51.88 |
| 20 | 52.06 | 51.92 | 52.04 | 52.22 | 52.16 | 52.27 | 52.29 | 52.21 | 52.32 | 52.10 | 51.96 | 51.95 |
| 21 | 52.10 | 51.91 | 52.07 | 52.24 | 52.19 | 52.27 | 52.29 | 52.16 | 52.34 | 52.08 | 51.97 | 51.99 |
| 22 | 52.09 | 51.90 | 52.07 | 52.25 | 52.24 | 52.33 | 52.33 | 52.14 | 52.28 | 52.07 | 51.96 | 52.03 |
| 23 | 52.08 | 51.93 | 52.10 | 52.31 | 52.29 | 52.34 | 52.32 | 52.14 | 52.25 | 52.06 | 52.00 | 52.02 |
| 24 | 52.07 | 51.95 | 52.13 | 52.29 | 52.28 | 52.36 | 52.35 | 52.14 | 52.27 | 52.07 | 52.00 | 52.01 |
| 25 | 52.10 | 51.96 | 52.08 | 52.25 | 52.27 | 52.37 | 52.37 | 52.15 | 52.35 | 52.12 | 52.06 | 52.01 |
| 26 | 52.11 | 51.99 | 52.02 | 52.25 | 52.26 | 52.35 | 52.42 | 52.17 | 52.38 | 52.15 | 52.09 | 51.99 |
| 27 | 52.13 | 52.03 | 51.96 | 52.17 | 52.31 | 52.33 | 52.38 | 52.19 | 52.41 | 52.15 | 52.08 | 51.99 |
| 28 | 52.11 | 52.01 | 51.93 | 52.13 | 52.31 | 52.30 | 52.31 | 52.22 | 52.40 | 52.16 | 52.05 | 51.98 |
| 29 | 52.18 | 52.02 | 51.90 | 52.05 | --- | 52.28 | 52.25 | 52.26 | 52.40 | 52.17 | 52.02 | 51.92 |
| 30 | 52.16 | 52.04 | 51.90 | 52.05 | --- | 52.28 | 52.22 | 52.29 | 52.38 | 52.16 | 51.99 | 51.88 |
| 31 | 52.18 | --- | 51.92 | 52.08 | --- | 52.26 | --- | 52.31 | --- | 52.12 | 51.97 | --- |
| MEAN | 52.11 | 51.99 | 52.04 | 52.12 | 52.16 | 52.28 | 52.30 | 52.19 | 52.34 | 52.19 | 52.05 | 51.98 |

WTR YR 1993 MEAN 52.15 HIGHEST 51.84 SEPT. 17, 1993 LOWEST 52.56 APR. 26, 1993



GROUND-WATER LEVELS

RIO GRANDE DE MANATI BASIN

182757066325600. Local number, 206.

LOCATION.--Lat 18°27'57", long 66°32'56", Hydrologic Unit 21010002, 0.84 mi northwest of Barceloneta plaza, 0.64 mi west of Central Plazuela, and 1.96 mi southeast of Escuela Agustín Balseiro. Owner: P.R. Department of Agriculture, Name: Plazuela No. 2.

AQUIFER.--Aymanón Limestone.

WELL CHARACTERISTICS.--Drilled unused water-table well, diameter 16 in (0.41 m), cased 16 in (0.41 m) 0-85 ft (0-25.9 m), open hole 85-101 ft (25.9-30.8 m). Depth 101 ft (30.8 m).

INSTRUMENTATION.--Digital water level recorder--60-minute punch.

DATUM.--Elevation of land-surface datum is about 7.0 ft (2.1 m) above mean sea level, from topographic map.

Measuring point: Hole on side of casing, 1.30 ft (0.40 m) above land-surface datum.

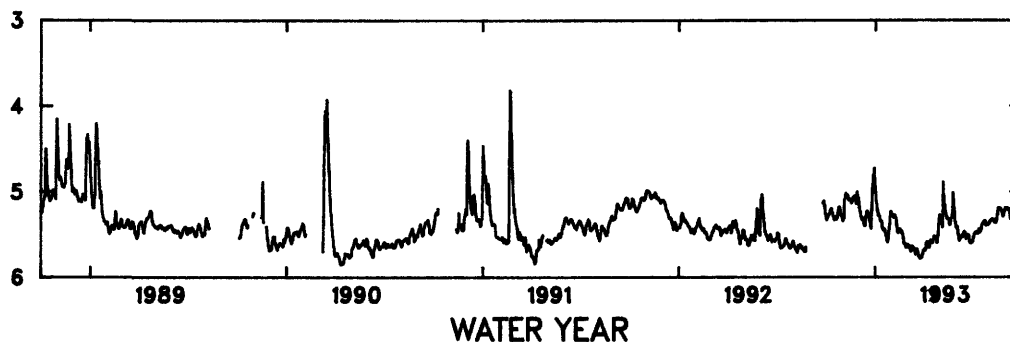
REMARKS.--Recording observation well.

PERIOD OF RECORD.--October 1985 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level recorded, 3.75 ft (1.14 m) below land-surface datum, Sept. 11, 1988; lowest water level recorded, 5.89 ft (1.80 m) below land-surface datum, Apr. 11-12, 1990.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993
INSTANTANEOUS OBSERVATION AT 1200

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|-------------|-----------|----------------------------|---------------------------|------|------|------|------|------|------|------|------|------|
| 1 | 5.31 | 5.34 | 5.13 | 4.96 | 5.28 | 5.65 | 5.69 | 5.27 | 5.42 | 5.59 | 5.37 | 5.20 |
| 2 | 5.33 | 5.32 | 5.19 | 5.06 | 5.27 | 5.63 | 5.68 | 5.28 | 5.41 | 5.55 | 5.35 | 5.19 |
| 3 | 5.32 | 5.31 | 5.22 | 5.12 | 5.28 | 5.62 | 5.69 | 5.29 | 5.45 | 5.53 | 5.34 | 5.19 |
| 4 | 5.30 | 5.10 | 5.25 | 5.18 | 5.30 | 5.63 | 5.68 | 5.34 | 5.50 | 5.51 | 5.34 | 5.20 |
| 5 | 5.29 | 5.08 | 5.29 | 5.23 | 5.28 | 5.64 | 5.62 | 5.38 | 5.53 | 5.49 | 5.33 | 5.21 |
| 6 | 5.27 | 5.05 | 5.31 | 5.25 | 5.27 | 5.64 | 5.60 | 5.42 | 5.57 | 5.48 | 5.32 | 5.20 |
| 7 | 5.26 | 5.02 | 5.33 | 5.28 | 5.28 | 5.67 | 5.59 | 4.88 | 5.56 | 5.48 | 5.32 | 5.21 |
| 8 | 5.24 | 5.05 | 5.33 | 5.27 | 5.31 | 5.70 | 5.59 | 5.05 | 5.54 | 5.47 | 5.33 | 5.24 |
| 9 | 5.22 | 5.05 | 5.31 | 5.29 | 5.34 | 5.69 | 5.63 | 5.17 | 5.52 | 5.48 | 5.33 | 5.31 |
| 10 | 5.21 | 5.04 | 5.33 | 5.33 | 5.40 | 5.65 | 5.65 | 5.15 | 5.53 | 5.48 | 5.33 | 5.32 |
| 11 | 5.20 | 5.07 | 5.38 | 5.35 | 5.46 | 5.64 | 5.65 | 5.21 | 5.53 | 5.49 | 5.36 | 5.30 |
| 12 | 5.24 | 5.10 | 5.40 | 5.35 | 5.48 | 5.65 | 5.63 | 5.26 | 5.53 | 5.46 | 5.36 | 5.26 |
| 13 | 5.25 | 5.10 | 5.40 | 5.36 | 5.47 | 5.68 | 5.60 | 5.29 | 5.51 | 5.44 | 5.36 | 5.22 |
| 14 | 5.28 | 5.10 | 5.30 | 5.41 | 5.46 | 5.66 | 5.57 | 5.32 | 5.49 | 5.45 | 5.35 | 5.17 |
| 15 | 5.31 | 5.09 | 5.25 | 5.44 | 5.44 | 5.68 | 5.57 | 5.31 | 5.48 | 5.47 | 5.31 | 5.13 |
| 16 | 5.33 | 5.09 | 5.23 | 5.45 | 5.44 | 5.69 | 5.57 | 5.32 | 5.47 | 5.45 | 5.27 | 5.10 |
| 17 | 5.31 | 5.13 | 5.23 | 5.44 | 5.46 | 5.73 | 5.60 | 5.33 | 5.48 | 5.43 | 5.20 | 5.07 |
| 18 | 5.30 | 5.12 | 5.25 | 5.44 | 5.48 | 5.72 | 5.59 | 5.35 | 5.52 | 5.40 | 5.19 | 5.08 |
| 19 | 5.30 | 5.11 | 5.26 | 5.46 | 5.46 | 5.67 | 5.56 | 5.39 | 5.55 | 5.38 | 5.19 | 5.11 |
| 20 | 5.29 | 5.08 | 5.30 | 5.48 | 5.48 | 5.68 | 5.53 | 5.38 | 5.53 | 5.37 | 5.20 | 5.15 |
| 21 | 5.32 | 5.07 | 5.34 | 5.51 | 5.50 | 5.71 | 5.52 | 5.33 | 5.54 | 5.36 | 5.21 | 5.19 |
| 22 | 5.30 | 5.06 | 5.36 | 5.53 | 5.54 | 5.74 | 5.53 | 5.31 | 5.52 | 5.35 | 5.20 | 5.22 |
| 23 | 5.26 | 5.07 | 5.41 | 5.57 | 5.61 | 5.76 | 5.53 | 5.29 | 5.50 | 5.34 | 5.22 | 5.23 |
| 24 | 5.20 | 5.05 | 5.43 | 5.59 | 5.61 | 5.76 | 5.54 | 5.30 | 5.51 | 5.34 | 5.22 | 5.20 |
| 25 | 5.18 | 5.08 | 5.22 | 5.54 | 5.61 | 5.78 | 5.57 | 5.01 | 5.55 | 5.36 | 5.25 | 5.19 |
| 26 | 5.19 | 5.14 | 5.03 | 5.49 | 5.61 | 5.78 | 5.60 | 5.11 | 5.59 | 5.39 | 5.29 | 5.16 |
| 27 | 5.23 | 5.14 | 4.91 | 5.42 | 5.65 | 5.77 | 5.57 | 5.21 | 5.60 | 5.38 | 5.28 | 5.15 |
| 28 | 5.27 | 5.00 | 4.82 | 5.38 | 5.65 | 5.77 | 5.51 | 5.28 | 5.60 | 5.38 | 5.25 | 5.16 |
| 29 | 5.28 | 5.07 | 4.78 | 5.25 | --- | 5.76 | 5.37 | 5.36 | 5.60 | 5.39 | 5.23 | 5.11 |
| 30 | 5.28 | 5.07 | 4.72 | 5.23 | --- | 5.73 | 5.30 | 5.39 | 5.58 | 5.38 | 5.21 | 5.09 |
| 31 | 5.30 | --- | 4.86 | 5.26 | --- | 5.69 | --- | 5.42 | --- | 5.37 | 5.19 | --- |
| MEAN | 5.27 | 5.10 | 5.21 | 5.35 | 5.44 | 5.70 | 5.58 | 5.27 | 5.52 | 5.43 | 5.28 | 5.19 |
| WTR YR 1993 | MEAN 5.36 | HIGHEST 4.64 DEC. 30, 1992 | LOWEST 5.83 MAR. 26, 1993 | | | | | | | | | |

WATER LEVEL, IN FEET BELOW
LAND-SURFACE DATUM

GROUND-WATER LEVELS

RIO GRANDE DE MANATI BASIN

182710066303700. Local number, 207.

LOCATION.--Lat 18°27'10", long 66°30'37", Hydrologic Unit 21010002, 1.92 mi east of Barceloneta plaza, 1.35 mi north of Central Monserrate, and 2.68 mi northeast of Escuela José Cordero. Owner: P.R. Aqueduct and Sewer Authority, Name: Cantito La Luisa.

AQUIFER.--Aymamón Limestone.

WELL CHARACTERISTICS.--Drilled unused water-table well, diameter 20 in (0.51 m), cased 20 in (0.51 m) 0-30 ft (0-9.14 m), cased 10 in (0.25 m) 0-126 ft (0-38.4 m), perforated 80-126 ft (24.4-38.4 m). Depth 126 ft (38.4 m).

INSTRUMENTATION.--Digital water level recorder--60-minute punch.

DATUM.--Elevation of land-surface datum is about 59.0 ft (18.0 m) above mean sea level, from topographic map.

Measuring point: Top of shelter floor, 2.80 ft (0.85 m) above land-surface datum. Prior to Nov. 20, 1992, hole on side of casing, 2.00 ft (0.61 m) above land-surface datum.

REMARKS.--Recording observation well.

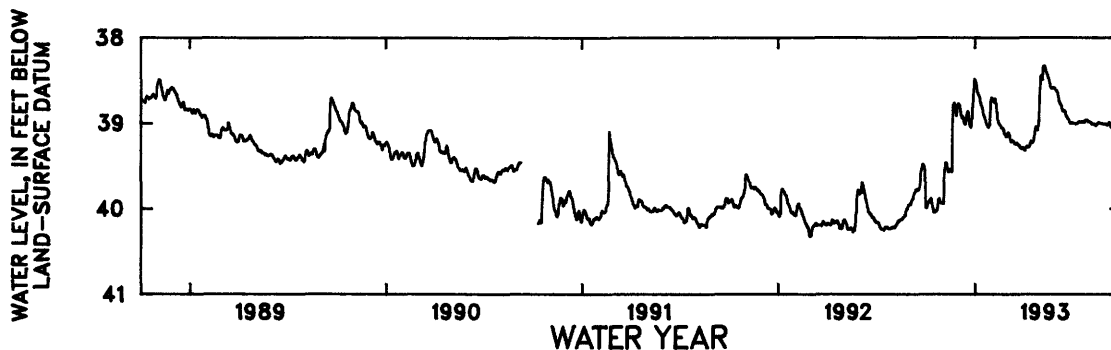
PERIOD OF RECORD.--October 1985 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level recorded, 36.38 ft (11.09 m) below land-surface datum, May 15, 1986; lowest water level recorded, 89.83 ft (27.38 m) below land-surface datum, Oct. 5, 1985.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993
INSTANTANEOUS OBSERVATION AT 1200

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| 1 | 39.99 | 39.94 | 38.77 | 38.50 | 38.71 | 39.16 | 39.30 | 38.60 | 38.62 | 39.00 | 38.98 | 39.01 |
| 2 | 39.99 | 39.94 | 38.78 | 38.53 | 38.72 | 39.14 | 39.31 | 38.51 | 38.64 | 39.00 | 38.99 | 39.01 |
| 3 | 39.99 | 39.94 | 38.79 | 38.56 | 38.73 | 39.11 | 39.32 | 38.45 | 38.66 | 39.00 | 38.99 | 39.02 |
| 4 | 39.97 | 39.70 | 38.82 | 38.61 | 38.75 | 39.11 | 39.32 | 38.44 | 38.69 | 39.00 | 38.99 | 39.02 |
| 5 | 39.94 | 39.56 | 38.87 | 38.64 | 38.73 | 39.13 | 39.29 | 38.46 | 38.73 | 39.00 | 39.01 | 39.01 |
| 6 | 39.93 | 39.52 | 38.91 | 38.65 | 38.71 | 39.15 | 39.28 | 38.49 | 38.75 | 39.00 | 39.01 | 39.00 |
| 7 | 39.92 | 39.46 | 38.92 | 38.67 | 38.73 | 39.18 | 39.27 | 38.35 | 38.76 | 39.01 | 39.01 | 38.99 |
| 8 | 39.92 | 39.46 | 38.94 | 38.68 | 38.77 | 39.21 | 39.27 | 38.33 | 38.78 | 39.01 | 39.01 | 39.00 |
| 9 | 39.90 | 39.48 | 38.92 | 38.70 | 38.80 | 39.22 | 39.28 | 38.33 | 38.78 | 39.01 | 39.01 | 39.02 |
| 10 | 39.89 | 39.52 | 38.94 | 38.74 | 38.87 | 39.20 | 39.28 | 38.33 | 38.80 | 39.00 | 39.01 | 39.03 |
| 11 | 39.88 | 39.55 | 38.98 | 38.77 | 38.93 | 39.20 | 39.28 | 38.35 | 38.83 | 38.99 | 39.02 | 39.05 |
| 12 | 39.90 | 39.57 | 39.00 | 38.79 | 38.97 | 39.21 | 39.27 | 38.38 | 38.85 | 38.99 | 39.02 | 39.03 |
| 13 | 39.94 | 39.57 | 39.01 | 38.80 | 38.99 | 39.22 | 39.25 | 38.40 | 38.86 | 38.98 | 39.02 | 39.03 |
| 14 | 39.98 | 39.56 | 39.01 | 38.82 | 39.00 | 39.22 | 39.23 | 38.41 | 38.85 | 38.98 | 39.03 | 39.01 |
| 15 | 40.00 | 39.54 | 38.96 | 38.86 | 39.01 | 39.24 | 39.21 | 38.43 | 38.85 | 38.99 | 39.01 | 39.00 |
| 16 | 40.04 | 39.54 | 38.92 | 38.90 | 39.02 | 39.24 | 39.22 | 38.45 | 38.85 | 38.99 | 39.01 | 38.99 |
| 17 | 40.04 | 39.55 | 38.88 | 38.91 | 39.03 | 39.24 | 39.23 | 38.47 | 38.87 | 38.99 | 39.00 | 38.98 |
| 18 | 40.04 | 39.56 | 38.86 | 38.92 | 39.05 | 39.25 | 39.23 | 38.50 | 38.89 | 38.98 | 38.99 | 38.97 |
| 19 | 40.02 | 39.57 | 38.88 | 38.94 | 39.05 | 39.23 | 39.22 | 38.54 | 38.92 | 38.98 | 38.99 | 38.98 |
| 20 | 40.02 | 38.78 | 38.93 | 38.96 | 39.06 | 39.24 | 39.18 | 38.57 | 38.92 | 38.98 | 39.00 | 38.99 |
| 21 | 40.03 | 38.79 | 38.98 | 38.99 | 39.06 | 39.24 | 39.14 | 38.58 | 38.94 | 38.99 | 39.00 | 39.01 |
| 22 | 40.02 | 38.77 | 39.01 | 39.01 | 39.07 | 39.25 | 39.10 | 38.59 | 38.94 | 38.99 | 39.00 | 39.01 |
| 23 | 40.00 | 38.76 | 39.04 | 39.02 | 39.09 | 39.26 | 39.05 | 38.59 | 38.95 | 38.98 | 39.00 | 39.01 |
| 24 | 39.92 | 38.78 | 39.05 | 39.04 | 39.12 | 39.26 | 39.04 | 38.59 | 38.96 | 38.98 | 39.00 | 39.00 |
| 25 | 39.89 | 38.82 | 39.01 | 39.04 | 39.13 | 39.28 | 39.06 | 38.58 | 38.98 | 38.96 | 39.00 | 39.00 |
| 26 | 39.88 | 38.88 | 38.94 | 39.05 | 39.13 | 39.29 | 39.08 | 38.58 | 38.99 | 38.96 | 39.01 | 38.97 |
| 27 | 39.90 | 38.91 | 38.81 | 39.03 | 39.15 | 39.29 | 39.08 | 38.59 | 39.00 | 38.96 | 39.01 | 38.97 |
| 28 | 39.93 | 38.86 | 38.73 | 39.02 | 39.16 | 39.30 | 39.03 | 38.59 | 39.00 | 38.96 | 39.01 | 38.96 |
| 29 | 39.93 | 38.82 | 38.62 | 38.77 | --- | 39.30 | 38.98 | 38.60 | 39.00 | 38.97 | 39.01 | 38.96 |
| 30 | 39.93 | 38.78 | 38.49 | 38.71 | --- | 39.30 | 38.71 | 38.61 | 38.99 | 38.98 | 39.01 | 38.94 |
| 31 | 39.93 | --- | 38.48 | 38.70 | --- | 39.29 | --- | 38.62 | --- | 38.98 | 39.01 | --- |
| MEAN | 39.96 | 39.32 | 38.88 | 38.82 | 38.95 | 39.22 | 39.18 | 38.49 | 38.85 | 38.99 | 39.01 | 39.00 |

WTR YR 1993 MEAN 39.06 HIGHEST 38.33 MAY 8-10, 1993 LOWEST 40.04 OCT. 16-18, 1992



GROUND-WATER LEVELS

RIO GRANDE DE MANATI BASIN

182308066260400. Local number, 210.

LOCATION.--Lat 18°23'08", long 66°26'04", Hydrologic Unit 21010002, 4.88 mi southeast of Manati plaza, 5.24 mi southwest of Vega Baja plaza, and 2.25 mi west of Escuela Evaristo Camacho. Owner: Gelo Martínez, Name: Gelo Martínez well.

AQUIFER.--Lares Limestone.

WELL CHARACTERISTICS.--Drilled unused water-table well, diameter 8 in (0.20 m), cased 8 in (0.20 m).

INSTRUMENTATION.--Digital water level recorder--60-minute punch.

DATUM.--Elevation of land-surface datum is about 574 ft (174.9 m) above mean sea level, from topographic map. Measuring point: Top of shelter floor, 3.30 ft (1.01 m) above land-surface datum. Prior to January 14, 1993, hole on side of casing, 2.00 ft (0.61 m) above land-surface datum.

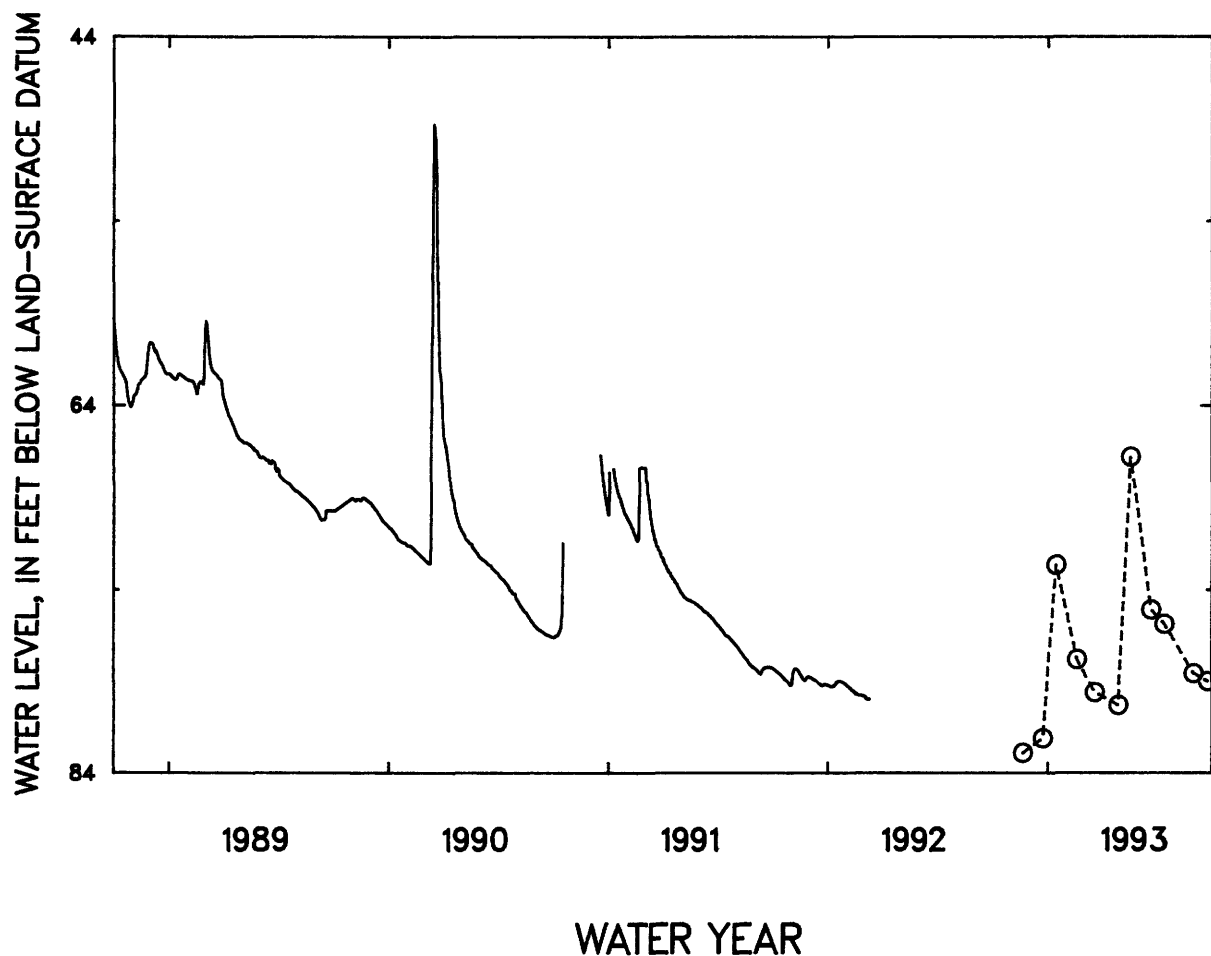
REMARKS.--Recording observation well.

PERIOD OF RECORD.--October 1985 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level recorded, 40.56 ft (12.36 m) below land-surface datum, May 22, 1986; lowest water level recorded, 83.01 ft (25.3 m) below land-surface datum, Sept. 29, 1992.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993
INSTANTANEOUS OBSERVATIONS

| Date | Water level | Date | Water level | Date | Water level | Date | Water level |
|---|-------------|---------|-------------|---------|-------------|----------|-------------|
| Nov. 20 | 82.90 | Feb. 18 | 77.80 | May 18 | 66.80 | Aug. 31 | 78.57 |
| Dec. 23 | 82.10 | Mar. 19 | 79.60 | June 21 | 75.10 | Sept. 23 | 79.00 |
| Jan. 14 | 72.65 | Apr. 27 | 80.30 | July 13 | 75.88 | | |
| WATER YEAR 1993 HIGHEST 66.80 MAY 18, 1993 LOWEST 82.90 NOV. 20, 1992 | | | | | | | |



GROUND-WATER LEVELS

RIO CIBUCO BASIN

182647066201700. Local number, 70.

LOCATION.--Lat 18°26'47", long 66°20'17", Hydrologic Unit 21010002, 1.52 mi north of Vega Alta plaza, 4.78 mi southwest of Dorado plaza, and 2.01 mi northwest of Escuela Industrial para Mujeres. Owner: P.R. Aqueduct and Sewer Authority, Name: Sabana Hoyos.

AQUIFER.--Limestone of Tertiary Age.

WELL CHARACTERISTICS.--Drilled unused artesian well, diameter 8 in (0.20 m), cased 0-90 ft (0-27.43 m), perforated. Depth 90 ft (27.43 m).

INSTRUMENTATION.--Digital water level recorder--60-minute punch.

DATUM.--Elevation of land-surface datum is about 49 ft (14.9 m) above mean sea level, from topographic map.

Measuring point: Top of casing wooden cover, 1.30 ft (0.40 m) above land-surface datum.

REMARKS.--Recording observation well.

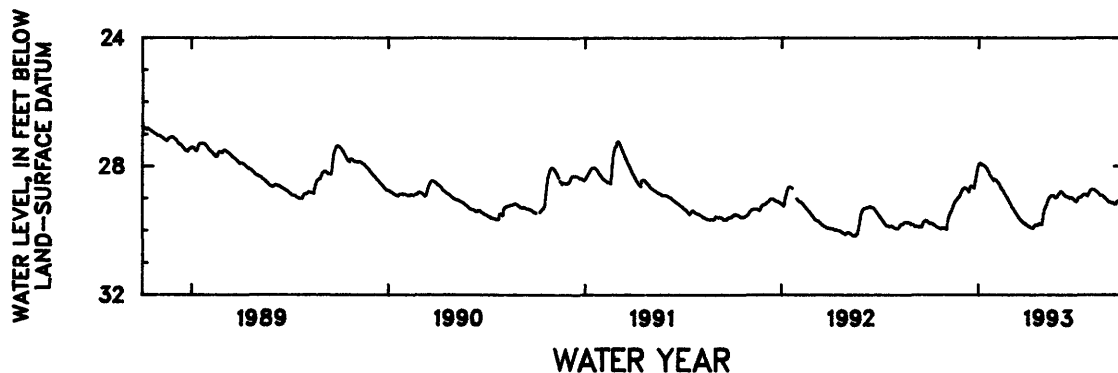
PERIOD OF RECORD.--February 1960 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level recorded, 21.33 ft (6.50 m) below land-surface datum, Oct. 26, 1976; lowest water level recorded, 31.10 ft (9.48 m) below land-surface datum, July 31, 1975.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993
INSTANTANEOUS OBSERVATION AT 1200

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| 1 | 29.76 | 29.95 | 28.76 | 27.96 | 28.42 | 29.18 | 29.84 | 29.50 | 28.81 | 29.10 | 28.71 | 29.12 |
| 2 | 29.77 | 29.96 | 28.72 | 27.93 | 28.43 | 29.22 | 29.86 | 29.42 | 28.79 | 29.11 | 28.72 | 29.13 |
| 3 | 29.78 | 29.97 | 28.72 | 27.91 | 28.44 | 29.25 | 29.87 | 29.35 | 28.78 | 29.07 | 28.73 | 29.13 |
| 4 | 29.79 | 29.83 | 28.70 | 27.90 | 28.47 | 29.28 | 29.88 | 29.30 | 28.79 | 29.02 | 28.74 | 29.14 |
| 5 | 29.77 | 29.70 | 28.68 | 27.91 | 28.49 | 29.30 | 29.88 | 29.27 | 28.81 | 29.00 | 28.75 | 29.15 |
| 6 | 29.77 | 29.64 | 28.67 | 27.93 | 28.51 | 29.33 | 29.88 | 29.24 | 28.83 | 28.99 | 28.76 | 29.15 |
| 7 | 29.78 | 29.57 | 28.69 | 27.96 | 28.53 | 29.35 | 29.90 | 29.20 | 28.84 | 28.98 | 28.78 | 29.15 |
| 8 | 29.79 | 29.52 | 28.68 | 27.95 | 28.56 | 29.38 | 29.91 | 29.12 | 28.88 | 28.97 | 28.79 | 29.16 |
| 9 | 29.81 | 29.48 | 28.70 | 27.96 | 28.58 | 29.40 | 29.92 | 29.08 | 28.90 | 28.97 | 28.80 | 29.17 |
| 10 | 29.82 | 29.44 | 28.70 | 27.97 | 28.61 | 29.43 | 29.92 | 29.04 | 28.92 | 28.96 | 28.82 | 29.19 |
| 11 | 29.82 | 29.40 | 28.71 | 27.99 | 28.65 | 29.46 | 29.93 | 29.00 | 28.93 | 28.96 | 28.84 | 29.18 |
| 12 | 29.84 | 29.38 | 28.75 | 28.00 | 28.68 | 29.48 | 29.93 | 28.97 | 28.94 | 28.93 | 28.86 | 29.18 |
| 13 | 29.85 | 29.33 | 28.77 | 28.01 | 28.71 | 29.51 | 29.89 | 28.95 | 28.94 | 28.91 | 28.88 | 29.18 |
| 14 | 29.86 | 29.28 | 28.80 | 28.03 | 28.74 | 29.53 | 29.88 | 28.94 | 28.95 | 28.89 | 28.90 | 29.13 |
| 15 | 29.88 | 29.23 | 28.71 | 28.05 | 28.75 | 29.57 | 29.86 | 28.92 | 28.95 | 28.88 | 28.91 | 29.11 |
| 16 | 29.89 | 29.18 | 28.67 | 28.07 | 28.78 | 29.59 | 29.83 | 28.91 | 28.96 | 28.88 | 28.91 | 29.10 |
| 17 | 29.90 | 29.14 | 28.64 | 28.10 | 28.81 | 29.60 | 29.84 | 28.91 | 28.98 | 28.88 | 28.91 | 29.09 |
| 18 | 29.91 | 29.11 | 28.62 | 28.13 | 28.85 | 29.63 | 29.84 | 28.91 | 28.98 | 28.88 | 28.92 | 29.08 |
| 19 | 29.91 | 29.08 | 28.62 | 28.16 | 28.87 | 29.65 | 29.83 | 28.91 | 29.00 | 28.88 | 28.93 | 29.07 |
| 20 | 29.92 | 29.06 | 28.63 | 28.19 | 28.92 | 29.67 | 29.84 | 28.92 | 28.99 | 28.89 | 28.94 | 29.07 |
| 21 | 29.93 | 29.06 | 28.64 | 28.23 | 28.94 | 29.68 | 29.83 | 28.94 | 28.98 | 28.92 | 28.95 | 29.09 |
| 22 | 29.94 | 29.04 | 28.66 | 28.27 | 28.96 | 29.71 | 29.82 | 28.97 | 28.98 | 28.93 | 28.96 | 29.10 |
| 23 | 29.95 | 29.00 | 28.67 | 28.30 | 29.00 | 29.73 | 29.79 | 28.97 | 29.00 | 28.90 | 28.98 | 29.11 |
| 24 | 29.93 | 28.97 | 28.68 | 28.33 | 29.02 | 29.74 | 29.79 | 28.98 | 28.99 | 28.87 | 29.00 | 29.11 |
| 25 | 29.92 | 28.97 | 28.54 | 28.36 | 29.05 | 29.75 | 29.79 | 28.96 | 29.01 | 28.83 | 29.02 | 29.11 |
| 26 | 29.92 | 28.95 | 28.46 | 28.38 | 29.09 | 29.77 | 29.79 | 28.96 | 29.03 | 28.79 | 29.04 | 29.11 |
| 27 | 29.92 | 28.93 | 28.36 | 28.40 | 29.11 | 29.79 | 29.81 | 28.93 | 29.04 | 28.76 | 29.06 | 29.10 |
| 28 | 29.93 | 28.89 | 28.26 | 28.43 | 29.15 | 29.79 | 29.81 | 28.90 | 29.06 | 28.74 | 29.07 | 29.11 |
| 29 | 29.93 | 28.83 | 28.16 | 28.45 | --- | 29.79 | 29.80 | 28.87 | 29.08 | 28.72 | 29.08 | 29.11 |
| 30 | 29.92 | 28.80 | 28.09 | 28.40 | --- | 29.82 | 29.64 | 28.86 | 29.09 | 28.71 | 29.10 | 29.10 |
| 31 | 29.93 | --- | 28.02 | 28.41 | --- | 29.82 | --- | 28.85 | --- | 28.71 | 29.12 | --- |
| MEAN | 29.87 | 29.29 | 28.60 | 28.13 | 28.75 | 29.55 | 29.85 | 29.03 | 28.94 | 28.90 | 28.90 | 29.12 |

WTR YR 1993 MEAN 29.08 HIGHEST 27.90 JAN. 3-5, 1993 LOWEST 29.97 NOV. 30, 1992



GROUND-WATER LEVELS

RIO CIBUCO BASIN

182615066235300. Local number, 211.

LOCATION.--Lat 18°26'15", long 66°23'53", Hydrologic Unit 21010002, 4.46 mi southeast of Manatí plaza, 5.48 mi southwest of Vega Baja plaza, and 1.22 mi east of Hwy 155 km 58.3. Owner: P.R. Aqueduct and Sewer Authority, Name: Rosario No. 2.

AQUIFER.--Aguada Limestone.

WELL CHARACTERISTICS.--Drilled unused water-table well, diameter 14 in (0.36 m) 0-200 ft (0-61.0 m), diameter 12 in (0.30 m) 200-250 ft (61.0-76.2 m), cased 12 in (0.30 m) 0-250 ft (0-76.2 m), perforated 210-250 ft (64.0-76.2 m), diameter 10 in (0.25 m) 250-270 ft (76.2-82.3 m), open hole; concrete sealed 0-200 ft (0-61.0 m). Depth 270 ft (82.3 m).

INSTRUMENTATION.--Digital water level recorder--60-minute punch.

DATUM.--Elevation of land-surface datum is about 215 ft (65.5 m) above mean sea level, from topographic map.

Measuring point: Hole on side of casing, 1.15 ft (0.35 m) above land-surface datum.

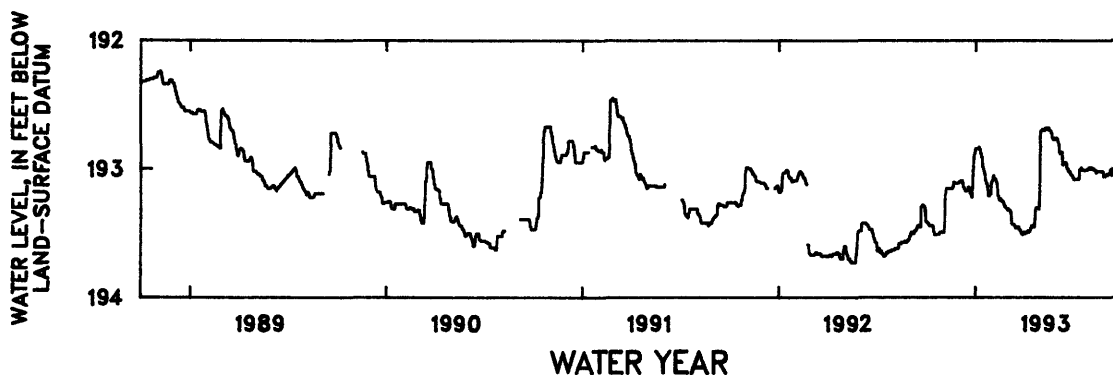
REMARKS.--Recording observation well.

PERIOD OF RECORD.--October 1985 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level recorded, 191.29 ft (58.30 m) below land-surface datum, May 16, 1986; lowest water level recorded, 193.73 ft (59.0 m) below land-surface datum, May 15-23, 1992.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993
INSTANTANEOUS OBSERVATION AT 1200

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|-------------|-------------|----------------|-----------------|--------|--------|--------|---------------|------------------|--------|--------|--------|--------|
| 1 | 193.41 | 193.49 | 193.10 | 192.84 | 193.09 | 193.32 | 193.50 | 192.74 | 192.76 | 193.07 | 193.00 | 193.05 |
| 2 | 193.41 | 193.49 | 193.10 | 192.84 | 193.08 | 193.32 | 193.49 | 192.70 | 192.77 | 193.08 | 193.00 | 193.04 |
| 3 | 193.42 | 193.49 | 193.10 | 192.84 | 193.05 | 193.31 | 193.50 | 192.70 | 192.79 | 193.08 | 192.99 | 193.05 |
| 4 | 193.42 | 193.43 | 193.09 | 192.84 | 193.07 | 193.32 | 193.50 | 192.70 | 192.82 | 193.08 | 192.99 | 193.04 |
| 5 | 193.43 | 193.19 | 193.09 | 192.84 | 193.08 | 193.32 | 193.49 | 192.69 | 192.86 | 193.08 | 193.00 | 193.04 |
| 6 | 193.43 | 193.18 | 193.09 | 192.84 | 193.08 | 193.33 | 193.49 | 192.70 | 192.88 | 193.08 | 193.00 | 193.04 |
| 7 | 193.44 | 193.15 | 193.09 | 192.83 | 193.08 | 193.33 | 193.49 | 192.70 | 192.87 | 193.08 | 193.00 | 193.03 |
| 8 | 193.44 | 193.15 | 193.14 | 192.85 | 193.09 | 193.35 | 193.48 | 192.70 | 192.87 | 193.08 | 193.00 | 193.01 |
| 9 | 193.44 | 193.15 | 193.14 | 192.85 | 193.11 | 193.43 | 193.49 | 192.70 | 192.87 | 193.08 | 193.01 | 193.01 |
| 10 | 193.44 | 193.15 | 193.15 | 192.88 | 193.12 | 193.43 | 193.49 | 192.68 | 192.87 | 193.08 | 193.01 | 193.01 |
| 11 | 193.44 | 193.15 | 193.16 | 192.89 | 193.21 | 193.43 | 193.48 | 192.68 | 192.97 | 193.08 | 193.01 | 193.05 |
| 12 | 193.44 | 193.15 | 193.17 | 192.91 | 193.21 | 193.43 | 193.48 | 192.68 | 192.97 | 193.07 | 193.02 | 193.05 |
| 13 | 193.44 | 193.15 | 193.17 | 192.91 | 193.23 | 193.43 | 193.46 | 192.68 | 192.96 | 193.00 | 193.03 | 193.05 |
| 14 | 193.46 | 193.15 | 193.17 | 192.99 | 193.24 | 193.44 | 193.46 | 192.69 | 192.96 | 193.00 | 193.02 | 193.05 |
| 15 | 193.49 | 193.15 | 193.17 | 192.99 | 193.24 | 193.44 | 193.44 | 192.69 | 192.95 | 193.00 | 193.02 | 193.01 |
| 16 | 193.51 | 193.15 | 193.16 | 193.02 | 193.24 | 193.46 | 193.44 | 192.68 | 192.95 | 192.99 | 193.02 | 193.01 |
| 17 | 193.51 | 193.15 | 193.16 | 193.03 | 193.23 | 193.46 | 193.44 | 192.68 | 192.95 | 193.00 | 193.02 | 193.01 |
| 18 | 193.51 | 193.15 | 193.14 | 193.04 | 193.25 | 193.46 | 193.44 | 192.70 | 192.96 | 193.01 | 193.02 | 192.96 |
| 19 | 193.51 | 193.15 | 193.14 | 193.08 | 193.25 | 193.45 | 193.45 | 192.70 | 192.99 | 193.01 | 193.02 | 192.95 |
| 20 | 193.51 | 193.13 | 193.16 | 193.10 | 193.25 | 193.45 | 193.45 | 192.70 | 193.00 | 193.01 | 193.02 | 192.95 |
| 21 | 193.51 | 193.10 | 193.18 | 193.11 | 193.25 | 193.45 | 193.39 | 192.71 | 193.00 | 193.01 | 193.02 | 192.95 |
| 22 | 193.51 | 193.11 | 193.19 | 193.12 | 193.26 | 193.45 | 193.31 | 192.72 | 193.02 | 193.01 | 193.02 | 192.96 |
| 23 | 193.51 | 193.11 | 193.19 | 193.13 | 193.28 | 193.47 | 193.30 | 192.75 | 193.02 | 193.01 | 193.02 | 192.96 |
| 24 | 193.51 | 193.11 | 193.22 | 193.21 | 193.29 | 193.47 | 193.30 | 192.76 | 193.02 | 193.01 | 193.02 | 193.00 |
| 25 | 193.50 | 193.11 | 193.22 | 193.21 | 193.29 | 193.48 | 193.30 | 192.77 | 193.02 | 193.01 | 193.02 | 193.00 |
| 26 | 193.49 | 193.11 | 193.14 | 193.21 | 193.30 | 193.49 | 193.30 | 192.77 | 193.04 | 193.01 | 193.03 | 193.00 |
| 27 | 193.49 | 193.11 | 193.00 | 193.20 | 193.31 | 193.50 | 193.30 | 192.77 | 193.04 | 193.01 | 193.06 | 193.00 |
| 28 | 193.49 | 193.11 | 192.94 | 193.19 | 193.31 | 193.50 | 193.31 | 192.76 | 193.05 | 193.00 | 193.06 | 193.01 |
| 29 | 193.49 | 193.11 | 192.89 | 193.19 | --- | 193.51 | 193.28 | 192.77 | 193.05 | 193.00 | 193.06 | 193.01 |
| 30 | 193.49 | 193.11 | 192.88 | 193.10 | --- | 193.50 | 193.01 | 192.77 | 193.06 | 192.99 | 193.06 | 193.01 |
| 31 | 193.49 | --- | 192.85 | 193.10 | --- | 193.49 | --- | 192.77 | --- | 192.99 | 193.05 | --- |
| MEAN | 193.47 | 193.18 | 193.11 | 193.01 | 193.20 | 193.43 | 193.41 | 192.72 | 192.94 | 193.03 | 193.02 | 193.01 |
| WTR YR 1993 | MEAN 193.13 | HIGHEST 192.67 | MAY 11-13, 1993 | | | | LOWEST 193.51 | OCT. 16-25, 1993 | | | | |



GROUND-WATER LEVELS

RIO CIBUCO BASIN

182515066194000. Local number, 212.

LOCATION.--Lat 18°25'15", long 66°19'40", Hydrologic Unit 21010002, 5.15 mi southwest of Dorado plaza, 0.49 mi north of Vega Alta plaza, and 1.04 mi northwest of Escuela Industrial para Mujeres. Owner: U.S. Geological Survey, WRD, Name: Ponderosa TW-1.

AQUIFER.--Aguada Limestone-Cibao Formation.

WELL CHARACTERISTICS.--Drilled unused water-table well, diameter 4 in (0.10 m), cased 4 in (0.10 m) 0-136 ft (0-41.1 m), perforated 121-131 ft (36.9-39.9 m); bentonite packed 0.5-121 ft (0.15-36.9 m). Depth 136 ft (39.9 m).

INSTRUMENTATION.--Digital water level recorder--60-minute punch.

DATUM.--Elevation of land-surface datum is about 98.0 ft (29.9 m) above mean sea level, from topographic map.

Measuring point: Shelter floor on top of 4 in (0.10 m) casing, 3.00 ft (0.91 m) above land-surface datum.

REMARKS.--Recording observation well. Water levels affected by nearby pumping well.

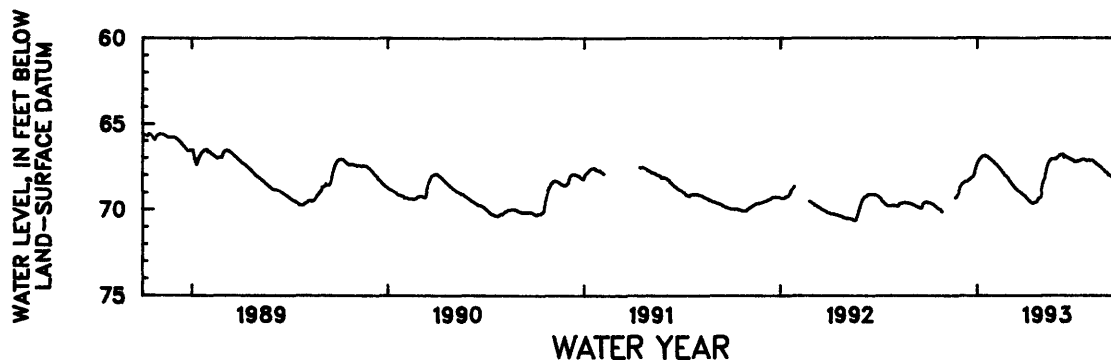
PERIOD OF RECORD.--October 1985 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level recorded, 63.05 ft (19.22 m) below land-surface datum, July 15, 1987; lowest water level recorded, 74.63 ft (22.75 m) below land-surface datum, Oct. 27-28, 1986.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993
INSTANTANEOUS OBSERVATION AT 1200

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| 1 | 69.60 | --- | 68.66 | 67.30 | 67.22 | 68.25 | 69.30 | 68.74 | 66.90 | 67.21 | 67.13 | 67.90 |
| 2 | 69.60 | --- | 68.61 | 67.24 | 67.28 | 68.33 | 69.33 | 68.58 | 66.84 | 67.21 | 67.13 | 67.99 |
| 3 | 69.60 | --- | 68.55 | 67.17 | 67.31 | 68.36 | 69.36 | 68.47 | 66.81 | 67.21 | 67.13 | 67.98 |
| 4 | 69.59 | --- | 68.50 | 67.12 | 67.34 | 68.39 | 69.38 | 68.36 | 66.82 | 67.20 | 67.15 | 67.99 |
| 5 | 69.60 | --- | 68.48 | 67.06 | 67.36 | 68.43 | 69.43 | 68.28 | 66.79 | 67.18 | 67.16 | 68.01 |
| 6 | 69.62 | --- | 68.45 | 67.03 | 67.37 | 68.50 | 69.47 | 68.22 | 66.79 | 67.18 | 67.22 | 68.03 |
| 7 | 69.64 | --- | 68.43 | 67.00 | 67.41 | 68.53 | 69.49 | 68.06 | 66.78 | 67.17 | 67.25 | 68.06 |
| 8 | 69.65 | --- | 68.41 | 66.97 | 67.45 | 68.56 | 69.50 | 67.89 | 66.78 | 67.16 | 67.25 | 68.07 |
| 9 | 69.68 | --- | 68.39 | 66.91 | 67.49 | 68.59 | 69.56 | 67.74 | 66.78 | 67.15 | 67.26 | 68.10 |
| 10 | 69.68 | --- | 68.36 | 66.90 | 67.54 | 68.63 | 69.58 | 67.60 | 66.80 | 67.15 | 67.30 | 68.12 |
| 11 | 69.69 | --- | 68.35 | 66.88 | 67.57 | 68.68 | 69.60 | 67.46 | 66.97 | 67.13 | 67.36 | 68.14 |
| 12 | 69.71 | --- | 68.35 | 66.87 | 67.62 | 68.71 | 69.61 | 67.36 | 66.87 | 67.11 | 67.37 | 68.15 |
| 13 | 69.77 | --- | 68.36 | 66.86 | 67.65 | 68.74 | 69.63 | 67.29 | 66.87 | 67.11 | 67.38 | 68.17 |
| 14 | 69.78 | --- | 68.37 | 66.85 | 67.68 | 68.79 | 69.62 | 67.22 | 66.89 | 67.10 | 67.41 | 68.17 |
| 15 | 69.81 | --- | 68.33 | 66.85 | 67.72 | 68.81 | 69.62 | 67.18 | 66.92 | 67.08 | 67.44 | 68.19 |
| 16 | 69.82 | --- | 68.28 | 66.86 | 67.76 | 68.85 | 69.60 | 67.14 | 66.94 | 67.07 | 67.47 | 68.23 |
| 17 | 69.86 | --- | 68.24 | 66.86 | 67.82 | 68.90 | 69.59 | 67.11 | 66.95 | 67.07 | 67.48 | 68.23 |
| 18 | 69.91 | --- | 68.24 | 66.89 | 67.85 | 68.92 | 69.58 | 67.07 | 66.96 | 67.07 | 67.50 | 68.23 |
| 19 | 69.92 | --- | 68.21 | 66.89 | 67.89 | 68.95 | 69.57 | 67.06 | 67.00 | 67.08 | 67.53 | 68.23 |
| 20 | 69.94 | --- | 68.18 | 66.90 | 67.94 | 68.96 | 69.57 | 67.04 | 67.00 | 67.09 | 67.56 | 68.23 |
| 21 | 69.95 | 69.30 | 68.16 | 66.92 | 67.99 | 68.97 | 69.55 | 67.04 | 67.01 | 67.11 | 67.60 | 68.24 |
| 22 | 69.97 | 69.29 | 68.11 | 66.97 | 68.01 | 69.00 | 69.46 | 67.04 | 67.05 | 67.12 | 67.63 | 68.25 |
| 23 | 69.99 | 69.26 | 68.10 | 67.00 | 68.02 | 69.01 | 69.40 | 67.04 | 67.06 | 67.14 | 67.66 | 68.26 |
| 24 | 70.00 | 69.23 | 68.08 | 67.02 | 68.05 | 69.06 | 69.36 | 67.04 | 67.07 | 67.14 | 67.68 | 68.30 |
| 25 | 70.02 | 69.16 | 68.05 | 67.05 | 68.10 | 69.09 | 69.33 | 67.04 | 67.09 | 67.14 | 67.71 | 68.31 |
| 26 | 70.07 | 69.11 | 67.99 | 67.07 | 68.13 | 69.12 | 69.32 | 67.04 | 67.11 | 67.12 | 67.74 | 68.32 |
| 27 | 70.13 | 69.06 | 67.89 | 67.09 | 68.16 | 69.15 | 69.30 | 67.04 | 67.11 | 67.11 | 67.79 | 68.33 |
| 28 | 70.13 | 68.91 | 67.73 | 67.12 | 68.18 | 69.17 | 69.30 | 67.01 | 67.12 | 67.12 | 67.81 | 68.34 |
| 29 | --- | 68.84 | 67.61 | 67.16 | --- | 69.19 | 69.28 | 66.98 | 67.15 | 67.11 | 67.82 | 68.36 |
| 30 | --- | 68.74 | 67.51 | 67.18 | --- | 69.21 | 68.98 | 66.96 | 67.21 | 67.15 | 67.84 | 68.38 |
| 31 | --- | --- | 67.39 | 67.21 | --- | 69.22 | --- | 66.94 | --- | 67.13 | 67.88 | --- |
| MEAN | 69.81 | 69.09 | 68.21 | 67.01 | 67.71 | 68.81 | 69.46 | 67.45 | 66.95 | 67.13 | 67.47 | 68.18 |

WTR YR 1993 MEAN 68.03 HIGHEST 66.78 JUNE 7-9, 1993 LOWEST 70.13 OCT. 27-28, 1992



GROUND-WATER LEVELS

RIO CIBUCO BASIN

182330066185700. Local number, 213.

LOCATION.--Lat 18°23'30", long 66°18'57", Hydrologic Unit 21010002, 1.82 mi southeast of Vega Alta plaza, 4.23 mi west of Toa Alta plaza, and 1.27 mi northwest off the intersection of Hwy 820 with Hwy 823. Owner: P.R. Aqueduct and Sewer Authority, Name: Pampano No. 2.

AQUIFER.--Rio Indio Limestone-Lares Limestone.

WELL CHARACTERISTICS.--Drilled unused water-table well, diameter 20 in (0.51 m), cased 20 in (0.51 m) 0-130 ft (0-39.6 m), diameter 14 in (0.36 m), cased 12 in (0.30 m) 0-220 ft (0-67.1 m); open hole 220-330 ft (67.6-100.6 m). Depth 330 ft (100.6 m).

INSTRUMENTATION.--Digital water level recorder--60-minute punch.

DATUM.--Elevation of land-surface datum is about 394 ft (120 m) above mean sea level, from topographic map.

Measuring point: Hole on side of casing, 2.95 ft (0.90 m) above land-surface datum.

REMARKS.--Recording observation well.

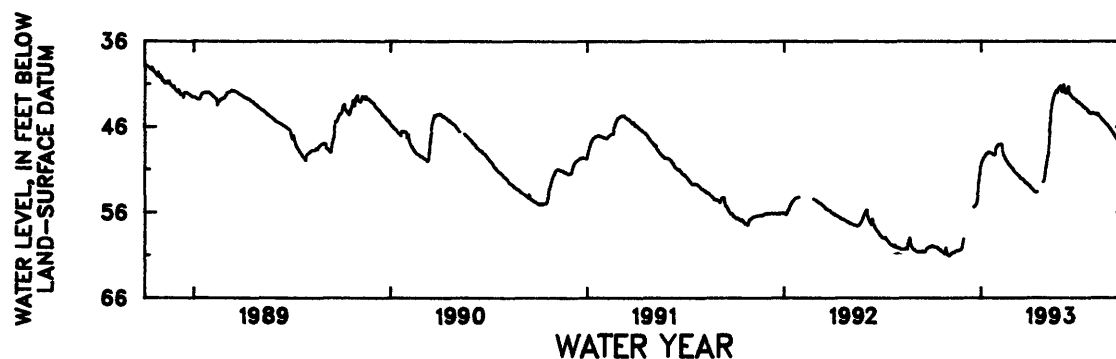
PERIOD OF RECORD.--October 1985 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level recorded, 34.40 ft (10.50 m) below land-surface datum, Dec. 6, 1985; lowest water level recorded, 61.13 ft (18.6 m) below land-surface datum, Nov. 3, 1992.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993
INSTANTANEOUS OBSERVATION AT 1200

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| 1 | 59.94 | 60.98 | --- | 50.30 | 48.10 | 50.90 | 52.85 | 50.84 | 41.91 | 43.10 | 44.44 | 46.52 |
| 2 | 59.93 | 61.00 | --- | 50.08 | 48.03 | 51.01 | 52.99 | 50.43 | 41.22 | 43.18 | 44.47 | 46.68 |
| 3 | 59.95 | 61.10 | --- | 49.89 | 48.05 | 51.12 | 53.06 | 49.98 | 41.08 | 43.28 | 44.53 | 46.84 |
| 4 | 59.96 | 61.02 | --- | 49.77 | 48.07 | 51.21 | 53.13 | 49.64 | 41.72 | 43.32 | 44.57 | 46.90 |
| 5 | 59.95 | 60.97 | --- | 49.64 | 48.04 | 51.28 | 53.18 | 49.35 | 41.87 | 43.37 | 44.55 | 46.96 |
| 6 | 60.03 | 60.89 | --- | 49.55 | 48.02 | 51.35 | 53.22 | 49.09 | 41.96 | 43.41 | 44.45 | 47.07 |
| 7 | 60.04 | 60.78 | --- | 49.49 | 48.02 | 51.43 | 53.32 | 47.57 | 42.03 | 43.46 | 44.68 | 47.20 |
| 8 | 60.04 | 60.75 | --- | 49.35 | 48.04 | 51.48 | 53.35 | 46.52 | 42.02 | 43.50 | 44.71 | 47.30 |
| 9 | 60.07 | 60.70 | --- | 49.23 | 48.42 | 51.53 | 53.44 | 45.70 | 42.05 | 43.62 | 44.77 | 47.43 |
| 10 | 60.08 | 60.69 | --- | 49.16 | 48.92 | 51.59 | 53.56 | 44.92 | 41.47 | 43.68 | 44.84 | 47.49 |
| 11 | 60.09 | 60.68 | --- | 49.10 | 49.18 | 51.67 | 53.58 | 44.24 | 41.37 | 43.67 | 44.91 | 47.58 |
| 12 | 60.10 | 60.67 | --- | 49.05 | 49.33 | 51.72 | 53.65 | 43.65 | 41.29 | 43.70 | 45.00 | 47.67 |
| 13 | 60.15 | 60.68 | --- | 48.99 | 49.43 | 51.75 | 53.67 | 43.22 | 41.95 | 43.83 | 45.11 | 47.68 |
| 14 | 60.22 | 60.67 | --- | 48.93 | 49.59 | 51.82 | 53.64 | 42.93 | 42.10 | 43.85 | 45.13 | 47.69 |
| 15 | 60.32 | 60.51 | --- | 49.00 | 49.74 | 51.99 | 53.64 | 42.61 | 42.15 | 43.88 | 45.25 | 47.73 |
| 16 | 60.36 | 60.49 | --- | 48.97 | 49.86 | --- | 53.63 | 42.41 | 42.28 | 43.91 | 45.26 | 47.77 |
| 17 | 60.36 | 60.49 | --- | 49.01 | 49.98 | 52.05 | --- | 42.21 | 42.36 | 44.05 | 45.34 | 47.83 |
| 18 | 60.38 | 60.47 | 55.36 | 49.07 | 50.03 | 52.09 | --- | 42.06 | 42.46 | 44.09 | 45.43 | 47.89 |
| 19 | 60.52 | 60.42 | 55.32 | 49.07 | 50.13 | 52.09 | --- | 41.89 | 42.53 | 44.09 | 45.49 | 47.93 |
| 20 | 60.58 | 60.45 | 55.25 | 49.09 | 50.28 | 52.15 | --- | 41.82 | 42.58 | 44.31 | 45.57 | 48.01 |
| 21 | 60.61 | 60.44 | 55.16 | 49.15 | 50.41 | 52.20 | --- | 41.72 | 42.66 | 44.34 | 45.67 | 48.05 |
| 22 | 60.62 | 60.43 | 55.09 | 49.19 | 50.44 | 52.28 | --- | 42.02 | 42.67 | 44.33 | 45.68 | 48.08 |
| 23 | 60.64 | 60.40 | 54.89 | 49.23 | 50.49 | 52.38 | --- | 41.83 | 42.72 | 44.37 | 45.71 | 48.08 |
| 24 | 60.74 | 60.35 | 54.70 | 49.27 | 50.57 | 52.47 | --- | 41.57 | 42.79 | 44.46 | 45.83 | 48.20 |
| 25 | 60.79 | 60.32 | 54.23 | 49.29 | 50.64 | 52.53 | --- | 41.45 | 42.84 | 44.46 | 45.93 | 48.28 |
| 26 | 60.86 | 60.23 | 53.57 | 49.28 | 50.75 | 52.57 | --- | 41.38 | 42.88 | 44.40 | 46.02 | 48.31 |
| 27 | 60.67 | 60.12 | 52.74 | 49.07 | 50.80 | 52.62 | 52.43 | 41.29 | 42.87 | 44.37 | 46.07 | 48.32 |
| 28 | 60.13 | 59.72 | 52.17 | 48.58 | 50.84 | 52.65 | 52.33 | 41.23 | 43.09 | 44.37 | 46.14 | 48.31 |
| 29 | 60.62 | 59.34 | 51.48 | 48.42 | --- | 52.76 | 52.07 | 41.26 | 43.07 | 44.40 | 46.25 | 48.31 |
| 30 | 60.78 | 59.13 | 50.94 | 48.29 | --- | 52.82 | 51.36 | 41.69 | 43.08 | 44.44 | 46.30 | 48.32 |
| 31 | 60.93 | --- | 50.58 | 48.17 | --- | 52.83 | --- | 41.87 | --- | 44.45 | 46.50 | --- |
| MEAN | 60.34 | 60.50 | 53.68 | 49.18 | 49.44 | 51.94 | 53.10 | 44.14 | 42.24 | 43.93 | 45.31 | 47.68 |

WTR YR 1993 MEAN 49.85 HIGHEST 41.04 JUNE 3, 1993 LOWEST 61.13 NOV. 3, 1992



GROUND-WATER LEVELS

RIO DE LA PLATA BASIN

182746066170800. Local number, 214.

LOCATION.--Lat 18°27'46", long 66°17'08", Hydrologic Unit 210100002, 1.58 mi west of Dorado plaza, 0.59 mi southeast of Dorado Airport main gate, and 3.76 mi north of Hwy 2 km 25.2. Owner: Dorado Beach Hotel, Name: Dorado Beach No. 7.

AQUIFER.--Aymamón Limestone.

WELL CHARACTERISTICS.--Drilled water-table well, diameter 18 in (0.46 m). Depth 100 ft (30.5 m).

INSTRUMENTATION.--Digital water level recorder--60-minute punch.

DATUM.--Elevation of land-surface datum is about 26.0 ft (8.0 m) above mean sea level, from topographic map. Prior to this report, elevation incorrectly used was 39.0 ft (11.9 m). Measuring point: Hole on side of casing, 1.10 ft (0.34 m) above land-surface datum.

REMARKS.--Recording observation well. Water levels affected by nearby pumping well.

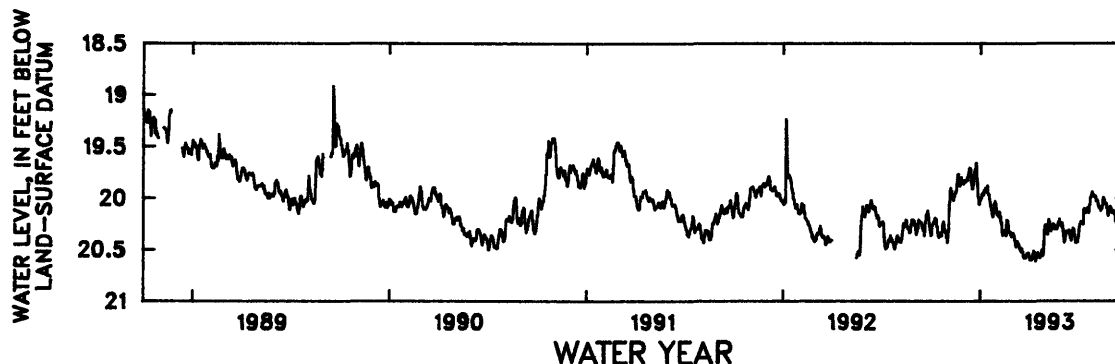
PERIOD OF RECORD.-- November 1985 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level recorded, 18.23 ft (5.56 m) below land-surface datum, Nov. 16, 1985; lowest water level recorded, 20.68 ft (6.30 m) below land-surface datum, May 16, 1992

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993
INSTANTANEOUS OBSERVATION AT 1200

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| 1 | 20.36 | 20.43 | 19.86 | 20.02 | 20.16 | 20.35 | 20.54 | 20.26 | 20.25 | 20.42 | 19.99 | 20.13 |
| 2 | 20.35 | 20.36 | 19.84 | 20.00 | 20.15 | 20.34 | 20.57 | 20.26 | 20.24 | 20.37 | 19.98 | 20.14 |
| 3 | 20.30 | 20.32 | 19.84 | 20.00 | 20.16 | 20.34 | 20.60 | 20.26 | 20.27 | 20.32 | 20.00 | 20.12 |
| 4 | 20.26 | 20.12 | 19.83 | 19.96 | 20.18 | 20.36 | 20.57 | 20.31 | 20.33 | 20.27 | 20.03 | 20.12 |
| 5 | 20.25 | 20.03 | 19.84 | 19.95 | 20.13 | 20.38 | 20.59 | 20.35 | 20.37 | 20.25 | 20.02 | 20.13 |
| 6 | 20.23 | 19.95 | 19.83 | 19.97 | 20.14 | 20.41 | 20.60 | 20.35 | 20.43 | 20.24 | 20.03 | 20.15 |
| 7 | 20.24 | 19.90 | 19.82 | 19.96 | 20.18 | 20.43 | 20.59 | 20.26 | 20.40 | 20.23 | 20.05 | 20.13 |
| 8 | 20.21 | 19.93 | 19.80 | 19.92 | 20.22 | 20.47 | 20.58 | 20.20 | 20.36 | 20.23 | 20.08 | 20.16 |
| 9 | 20.19 | 19.93 | 19.83 | 19.94 | 20.24 | 20.46 | 20.54 | 20.23 | 20.32 | 20.24 | 20.09 | 20.23 |
| 10 | 20.20 | 19.97 | 19.77 | 19.91 | 20.31 | 20.42 | 20.51 | 20.26 | 20.32 | 20.25 | 20.08 | 20.24 |
| 11 | 20.20 | 19.99 | 19.72 | 19.90 | 20.36 | 20.42 | 20.52 | 20.31 | 20.33 | 20.25 | 20.10 | 20.20 |
| 12 | 20.26 | 20.02 | 19.71 | 19.90 | 20.33 | 20.44 | 20.55 | 20.32 | 20.33 | 20.10 | 20.12 | 20.12 |
| 13 | 20.28 | 19.99 | 19.71 | 19.91 | 20.32 | 20.45 | 20.58 | 20.30 | 20.33 | 20.10 | 20.11 | 20.07 |
| 14 | 20.34 | 19.98 | 19.73 | 19.88 | 20.32 | 20.47 | 20.61 | 20.30 | 20.31 | 20.12 | 20.10 | 19.99 |
| 15 | 20.37 | 19.96 | 19.80 | 19.96 | 20.31 | 20.49 | 20.58 | 20.26 | 20.31 | 20.14 | 20.07 | 19.96 |
| 16 | 20.38 | 19.94 | 19.88 | 19.96 | 20.32 | 20.48 | 20.56 | 20.25 | 20.32 | 20.13 | 20.03 | 19.93 |
| 17 | 20.35 | 19.94 | 19.91 | 19.97 | 20.34 | 20.51 | 20.55 | 20.26 | 20.37 | 20.13 | 19.99 | 19.95 |
| 18 | 20.33 | 19.89 | 19.91 | 20.01 | 20.36 | 20.52 | 20.53 | 20.26 | 20.39 | 20.11 | 20.01 | 19.96 |
| 19 | 20.34 | 19.82 | 19.87 | 20.05 | 20.21 | 20.49 | 20.55 | 20.30 | 20.41 | 20.09 | 20.02 | 19.99 |
| 20 | 20.33 | 19.77 | 19.81 | 20.07 | 20.22 | 20.52 | 20.57 | 20.29 | 20.33 | 20.11 | 20.05 | 20.03 |
| 21 | 20.36 | 19.77 | 19.74 | 20.11 | 20.22 | 20.52 | 20.58 | 20.29 | 20.31 | 20.14 | 20.06 | 20.05 |
| 22 | 20.32 | 19.77 | 19.73 | 20.12 | 20.28 | 20.57 | 20.58 | 20.29 | 20.29 | 20.12 | 20.05 | 20.07 |
| 23 | 20.26 | 19.82 | 19.68 | 20.16 | 20.33 | 20.58 | 20.57 | 20.30 | 20.30 | 20.06 | 20.07 | 20.06 |
| 24 | 20.24 | 19.88 | 19.66 | 20.18 | 20.33 | 20.58 | 20.54 | 20.28 | 20.31 | 20.00 | 20.10 | 20.02 |
| 25 | 20.23 | 19.85 | 19.73 | 20.15 | 20.33 | 20.58 | 20.52 | 20.24 | 20.36 | 19.98 | 20.13 | 20.00 |
| 26 | 20.27 | 19.80 | 19.82 | 20.13 | 20.33 | 20.58 | 20.50 | 20.23 | 20.40 | 19.97 | 20.17 | 20.02 |
| 27 | 20.31 | 19.80 | 19.96 | 20.05 | 20.36 | 20.56 | 20.56 | 20.24 | 20.43 | 19.94 | 20.14 | 20.02 |
| 28 | 20.33 | 19.83 | 19.99 | 20.03 | 20.37 | 20.54 | 20.54 | 20.20 | 20.43 | 19.96 | 20.11 | 20.02 |
| 29 | 20.32 | 19.83 | 20.04 | 20.05 | --- | 20.54 | 20.45 | 20.24 | 20.42 | 19.98 | 20.10 | 19.97 |
| 30 | 20.38 | 19.86 | 20.06 | 20.07 | --- | 20.54 | 20.31 | 20.26 | 20.40 | 19.97 | 20.08 | 19.97 |
| 31 | 20.36 | --- | 20.01 | 20.13 | --- | 20.53 | --- | 20.27 | --- | 19.97 | 20.10 | --- |
| MEAN | 20.30 | 19.95 | 19.83 | 20.01 | 20.27 | 20.48 | 20.55 | 20.27 | 20.35 | 20.14 | 20.07 | 20.06 |

WTR YR 1993 MEAN 20.19 HIGHEST 19.60 DEC. 24, 1992 LOWEST 20.63 APR. 14, 1993



GROUND-WATER LEVELS

RIO DE LA PLATA BASIN

182530066135400. Local number, 216.

LOCATION.--Lat 18°25'30", long 66°13'54", Hydrologic Unit 21010005, 2.61 mi northeast of Toa Alta plaza, 2.73 mi southwest of Sabana Seca U.S. Naval Radio Station, and 1.76 mi southeast of Hwy 2 km 17.7. Owner: P.R. Aqueduct and Sewer Authority, Name: Pozo Navy-Campanillas.

AQUIFER.--Aguada Limestone.

WELL CHARACTERISTICS.--Drilled unused water-table well, diameter 16 in (0.41 m) 0-106 ft (0-32.3 m), cased 16 in (0.41 m) 0-20 ft (0-6.10 m), cased 12 in (0.30 m) 0-106 ft (0-32.3 m), perforated 20-106 ft (6.10-32.3 m), diameter 10 in (0.25 m) 106-140 ft (32.3-42.7 m), cased 10 in (0.25 m) 106-140 ft (32.3-42.7 m), perforated 106-140 ft (32.3-42.7 m). Depth 140 ft (42.7 m).

INSTRUMENTATION.--Digital water level recorder--60-minute punch.

DATUM.--Elevation of land-surface datum is about 13.0 ft (3.96 m) above mean sea level, from topographic map.

Measuring point: Hole on side of casing, 1.80 ft (0.55 m) above land-surface datum.

REMARKS.--Recording observation well.

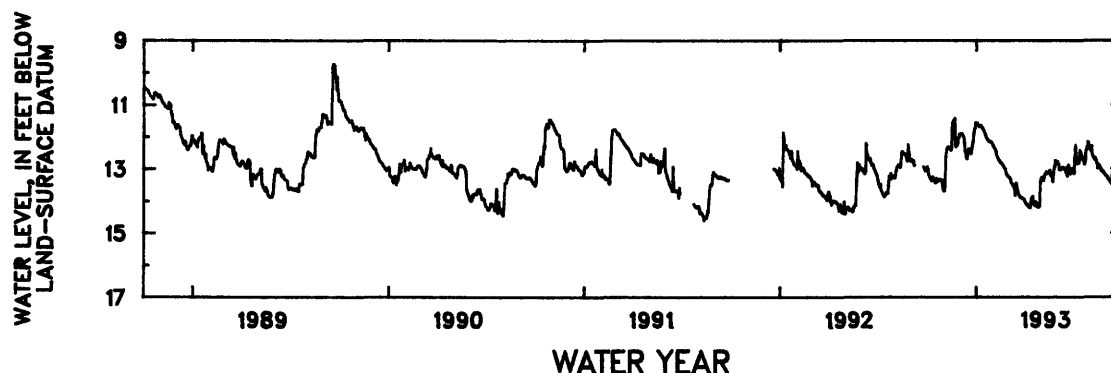
PERIOD OF RECORD.--October 1985 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level recorded, 9.38 ft (2.86 m) below land-surface datum, June 23, 1987; lowest water level recorded, 14.72 ft (4.49 m) below land-surface datum, Apr. 28, 1986.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993
INSTANTANEOUS OBSERVATION AT 1200

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| 1 | 12.93 | 13.69 | 11.89 | 11.56 | 12.27 | 13.24 | 14.01 | 13.33 | 12.77 | 13.14 | 12.42 | 13.26 |
| 2 | 13.01 | 13.69 | 11.89 | 11.57 | 12.31 | 13.24 | 14.04 | 13.28 | 12.85 | 13.11 | 12.45 | 13.28 |
| 3 | 13.13 | 13.57 | 11.92 | 11.60 | 12.35 | 13.27 | 14.10 | 13.26 | 12.85 | 12.36 | 12.28 | 13.29 |
| 4 | 13.20 | 12.74 | 11.92 | 11.63 | 12.37 | 13.29 | 14.11 | 13.28 | 13.02 | 12.25 | 12.57 | 13.34 |
| 5 | 13.24 | 12.48 | 11.90 | 11.66 | 12.41 | 13.32 | 14.10 | 13.34 | 13.00 | 12.70 | 12.59 | 13.35 |
| 6 | 13.27 | 12.36 | 11.95 | 11.67 | 12.46 | 13.39 | 14.11 | 13.36 | 13.03 | 12.77 | 12.63 | 13.39 |
| 7 | 13.29 | 12.33 | 11.98 | 11.65 | 12.55 | 13.44 | 14.15 | 13.25 | 13.00 | 12.83 | 12.66 | 13.38 |
| 8 | 13.31 | 12.34 | 12.02 | 11.63 | 12.60 | 13.46 | 14.18 | 13.17 | 13.00 | 12.72 | 12.70 | 13.40 |
| 9 | 13.36 | 12.31 | 12.19 | 11.63 | 12.64 | 13.48 | 14.17 | 13.16 | 12.96 | 12.77 | 12.72 | 13.46 |
| 10 | 13.28 | 12.31 | 12.33 | 11.69 | 12.68 | 13.50 | 14.20 | 13.13 | 12.95 | 12.82 | 12.66 | 13.48 |
| 11 | 13.25 | 12.37 | 12.48 | 11.72 | 12.72 | 13.54 | 14.21 | 13.09 | 12.97 | 12.72 | 12.73 | 13.07 |
| 12 | 13.29 | 12.36 | 12.59 | 11.73 | 12.74 | 13.57 | 14.11 | 13.11 | 13.00 | 12.41 | 12.80 | 13.08 |
| 13 | 13.31 | 12.35 | 12.66 | 11.76 | 12.76 | 13.61 | 13.95 | 13.13 | 13.00 | 12.46 | 12.84 | 13.08 |
| 14 | 13.36 | 12.41 | 12.69 | 11.79 | 12.78 | 13.83 | 13.90 | 13.13 | 12.97 | 12.52 | 12.98 | 12.99 |
| 15 | 13.40 | 12.35 | 12.41 | 11.85 | 12.82 | 13.69 | 13.87 | 13.09 | 13.03 | 12.57 | 12.94 | 12.98 |
| 16 | 13.43 | 11.66 | 12.38 | 11.89 | 12.81 | 13.43 | 13.85 | 13.12 | 13.07 | 12.61 | 12.87 | 12.92 |
| 17 | 13.43 | 11.55 | 12.38 | 11.94 | 12.84 | 13.54 | 14.01 | 13.05 | 13.11 | 12.68 | 12.87 | 12.52 |
| 18 | 13.29 | 11.48 | 12.37 | 12.00 | 12.87 | 13.64 | 14.07 | 13.04 | 13.16 | 12.72 | 12.92 | 12.80 |
| 19 | 13.31 | 12.00 | 12.43 | 12.02 | 12.89 | 13.69 | 14.11 | 13.20 | 13.22 | 12.73 | 12.96 | 12.82 |
| 20 | 13.35 | 12.08 | 12.46 | 12.04 | 12.92 | 13.77 | 14.15 | 13.21 | 12.92 | 12.78 | 13.00 | 12.72 |
| 21 | 13.38 | 11.39 | 12.52 | 12.09 | 12.95 | 13.81 | 14.06 | 13.24 | 12.88 | 12.85 | 13.06 | 12.72 |
| 22 | 13.36 | 12.25 | 12.46 | 12.09 | 12.97 | 13.86 | 14.02 | 13.25 | 13.08 | 12.78 | 13.05 | 12.69 |
| 23 | 13.35 | 12.31 | 12.38 | 12.13 | 13.00 | 13.86 | 14.06 | 13.41 | 12.99 | 12.46 | 13.05 | 12.79 |
| 24 | 13.32 | 12.26 | 12.22 | 12.16 | 13.02 | 13.90 | 14.16 | 13.21 | 12.99 | 12.40 | 13.07 | 12.78 |
| 25 | 13.33 | 12.27 | 12.13 | 12.14 | 13.16 | 13.89 | 14.19 | 13.01 | 13.16 | 12.31 | 13.12 | 12.91 |
| 26 | 13.35 | 12.26 | 11.95 | 12.14 | 13.16 | 13.89 | 14.18 | 12.94 | 13.08 | 12.32 | 13.12 | 12.95 |
| 27 | 13.36 | 12.12 | 11.81 | 12.14 | 13.20 | 13.92 | 14.20 | 12.81 | 13.08 | 12.15 | 13.15 | 12.82 |
| 28 | 13.34 | 12.00 | 11.72 | 12.17 | 13.22 | 13.92 | 14.19 | 12.73 | 12.98 | 12.19 | 13.18 | 12.85 |
| 29 | 13.42 | 12.01 | 11.70 | 12.18 | --- | 13.93 | 14.13 | 12.76 | 13.07 | 12.26 | 13.20 | 12.81 |
| 30 | 13.56 | 11.90 | 11.53 | 12.22 | --- | 13.94 | 13.35 | 12.78 | 13.10 | 12.32 | 13.21 | 12.82 |
| 31 | 13.65 | --- | 11.58 | 12.27 | --- | 13.97 | --- | 12.84 | --- | 12.38 | 13.23 | --- |
| MEAN | 13.32 | 12.31 | 12.16 | 11.90 | 12.77 | 13.64 | 14.06 | 13.12 | 13.01 | 12.58 | 12.87 | 13.02 |

WTR YR 1993 MEAN 12.90 HIGHEST 11.36 NOV. 18, 1992 LOWEST 14.24 APR. 25, 1993



GROUND-WATER LEVELS
RIO DE LA PLATA BASIN

182655066142400. Local number, 217.

LOCATION.--Lat 18°26'55", long 66°14'24", Hydrologic Unit 21010005, 4.00 mi northeast of Toa Alta plaza, 3.40 mi northwest of Hwy 2 km 17.7, and 3.49 mi northwest of Sabana Seca U.S. Naval Radio Station. Owner: U.S. Geological Survey, WRD, Name: Monserrate TW-2.

AQUIFER.--Alluvial Deposits.

WELL CHARACTERISTICS.--Drilled unused water-table well, diameter 4 in (0.10 m), cased 4 in (0.10 m) 0-80 ft (0-24.4 m), perforated 10-80 ft (3.05-24.4 m). Depth 80 ft (24.4 m).

INSTRUMENTATION.--Digital water level recorder--60-minute punch.

DATUM.--Elevation of land-surface datum is about 3.30 ft (1.00 m) above mean sea level, from topographic map. Measuring point: Top of shelter floor, 3.50 ft (1.07 m) above land-surface datum.

REMARKS.--Recording observation well.

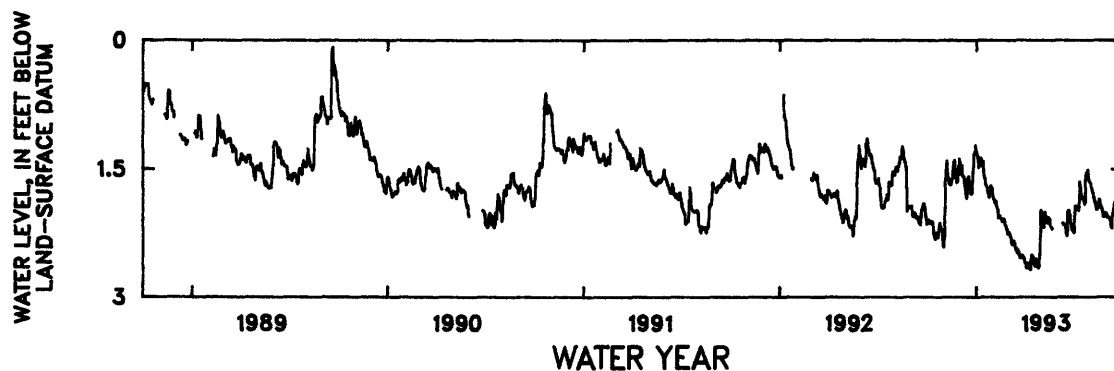
PERIOD OF RECORD.--November 1985 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level recorded, 0.02 ft (0.006 m) below land-surface datum, May 16, 1986; lowest water level recorded, 2.75 ft (0.84 m) below land-surface datum, Apr. 25-27, 1993.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993
INSTANTANEOUS OBSERVATION AT 1200

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|------|------|------|------|------|------|------|------|------|------|------|------|------|
| 1 | 2.14 | 2.41 | 1.42 | 1.31 | 1.85 | 2.24 | 2.57 | 1.98 | --- | 2.24 | 1.66 | 2.04 |
| 2 | 2.13 | 2.32 | 1.50 | 1.34 | 1.85 | 2.24 | 2.60 | 1.99 | --- | 2.20 | 1.67 | 2.06 |
| 3 | 2.09 | 2.26 | 1.56 | 1.35 | 1.87 | 2.25 | 2.65 | 2.01 | --- | 2.01 | 1.72 | 2.06 |
| 4 | 2.09 | 1.68 | 1.55 | 1.41 | 1.89 | 2.27 | 2.66 | 2.09 | --- | 1.92 | 1.76 | 2.06 |
| 5 | 2.12 | 1.56 | 1.45 | 1.48 | 1.87 | 2.29 | 2.60 | 2.17 | --- | 1.93 | 1.77 | 2.07 |
| 6 | 2.12 | 1.42 | 1.54 | 1.37 | 1.88 | 2.31 | 2.60 | 2.18 | --- | 1.95 | 1.79 | 2.08 |
| 7 | 2.13 | 1.40 | 1.58 | 1.38 | 1.93 | 2.36 | 2.60 | 2.05 | --- | 1.97 | 1.83 | 2.09 |
| 8 | 2.11 | 1.55 | 1.59 | 1.38 | 1.95 | 2.38 | 2.61 | 1.99 | --- | 1.94 | 1.86 | 2.14 |
| 9 | 2.13 | 1.56 | 1.59 | 1.37 | 1.97 | 2.38 | 2.67 | 2.02 | --- | 1.95 | 1.88 | 2.18 |
| 10 | 2.12 | 1.61 | 1.66 | 1.43 | 2.03 | 2.34 | 2.67 | 2.04 | --- | 1.98 | 1.90 | 2.19 |
| 11 | 2.11 | 1.65 | 1.75 | 1.46 | 2.07 | 2.34 | 2.68 | 2.09 | 2.13 | 1.94 | 1.93 | 2.04 |
| 12 | 2.15 | 1.67 | 1.79 | 1.42 | 2.06 | 2.34 | 2.60 | 2.11 | 2.14 | 1.64 | 1.96 | 2.01 |
| 13 | 2.22 | 1.66 | 1.83 | 1.41 | 2.04 | 2.37 | 2.55 | 2.12 | 2.15 | 1.69 | 1.97 | 1.98 |
| 14 | 2.27 | 1.68 | 1.84 | 1.51 | 2.06 | 2.41 | 2.50 | 2.13 | 2.14 | 1.79 | 1.96 | 1.91 |
| 15 | 2.30 | 1.67 | 1.65 | 1.58 | 2.07 | 2.44 | 2.52 | 2.06 | 2.16 | 1.82 | 1.94 | 1.90 |
| 16 | 2.32 | 1.63 | 1.60 | 1.60 | 2.08 | 2.42 | 2.52 | 2.07 | 2.20 | 1.82 | 1.89 | 1.87 |
| 17 | 2.30 | 1.61 | 1.59 | 1.61 | 2.09 | 2.43 | 2.56 | 2.08 | 2.24 | 1.84 | 1.85 | 1.82 |
| 18 | 2.24 | 1.57 | 1.59 | 1.67 | 2.11 | 2.47 | 2.61 | 2.10 | 2.28 | 1.85 | 1.87 | 1.83 |
| 19 | 2.26 | 1.41 | 1.63 | 1.69 | 2.10 | 2.44 | 2.63 | 2.17 | 2.21 | 1.83 | 1.89 | 1.86 |
| 20 | 2.28 | 1.48 | 1.69 | 1.70 | 2.09 | 2.47 | 2.64 | 2.18 | 1.99 | 1.86 | 1.93 | 1.85 |
| 21 | 2.30 | 1.39 | 1.79 | 1.76 | 2.08 | 2.47 | 2.55 | 2.20 | 1.98 | 1.91 | 1.95 | 1.87 |
| 22 | 2.25 | 1.48 | 1.79 | 1.77 | 2.11 | 2.51 | 2.55 | --- | 1.98 | 1.89 | 1.95 | 1.86 |
| 23 | 2.19 | 1.56 | 1.79 | 1.80 | 2.15 | 2.52 | 2.57 | --- | 2.02 | 1.64 | 1.97 | 1.85 |
| 24 | 2.16 | 1.61 | 1.73 | 1.83 | 2.16 | 2.54 | 2.64 | --- | 2.04 | 1.57 | 2.01 | 1.82 |
| 25 | 2.13 | 1.60 | 1.62 | 1.79 | 2.20 | 2.53 | 2.65 | --- | 2.09 | 1.54 | 2.05 | 1.84 |
| 26 | 2.18 | 1.66 | 1.54 | 1.76 | 2.20 | 2.52 | 2.66 | --- | 2.14 | 1.57 | 2.05 | 1.84 |
| 27 | 2.20 | 1.64 | 1.31 | 1.70 | 2.23 | 2.51 | 2.64 | --- | 2.19 | 1.51 | 2.05 | 1.84 |
| 28 | 2.22 | 1.46 | 1.31 | 1.69 | 2.26 | 2.51 | 2.59 | --- | 2.21 | 1.56 | 2.03 | 1.84 |
| 29 | 2.21 | 1.54 | 1.29 | 1.72 | --- | 2.52 | 2.52 | --- | 2.22 | 1.62 | 2.01 | 1.82 |
| 30 | 2.32 | 1.37 | 1.22 | 1.72 | --- | 2.54 | 1.97 | --- | 2.21 | 1.63 | 2.01 | 1.81 |
| 31 | 2.38 | --- | 1.30 | 1.82 | --- | 2.54 | --- | --- | --- | 1.65 | 2.02 | --- |
| MEAN | 2.20 | 1.64 | 1.58 | 1.58 | 2.04 | 2.42 | 2.58 | 2.09 | 2.14 | 1.81 | 1.91 | 1.95 |

WTR YR 1993 MEAN 1.99 HIGHEST 1.19 DEC. 29, 30, 1992 LOWEST 2.75 APR. 25-27, 1993



GROUND-WATER LEVELS

467

RIO HONDO TO RIO PUERTO NUEVO BASINS

182623066111000. Local number, 218.

LOCATION.--Lat 18°26'23", long 66°11'10", Hydrologic Unit 21010005, 3.30 mi northwest of Bayamón plaza, 1.78 mi south of Hwy 165 km 26.5, and 2.38 mi northeast of Hwy 2 km 16.2. Owner: P.R. Aqueduct and Sewer Authority, Name: Levittown No. 7.

AQUIFER.--Alluvial deposits-Aymamón Limestone.

WELL CHARACTERISTICS.--Drilled water-table well.

INSTRUMENTATION.--Digital water level recorder--60-minute punch.

DATUM.--Elevation of land surface datum is about 10.0 ft (3.05 m) above mean sea level, from topographic map.

Measuring point: Hole on pump base, 1.55 ft (0.47 m) above land-surface datum.

REMARKS.--Recording observation well. Water levels affected by nearby pumping well.

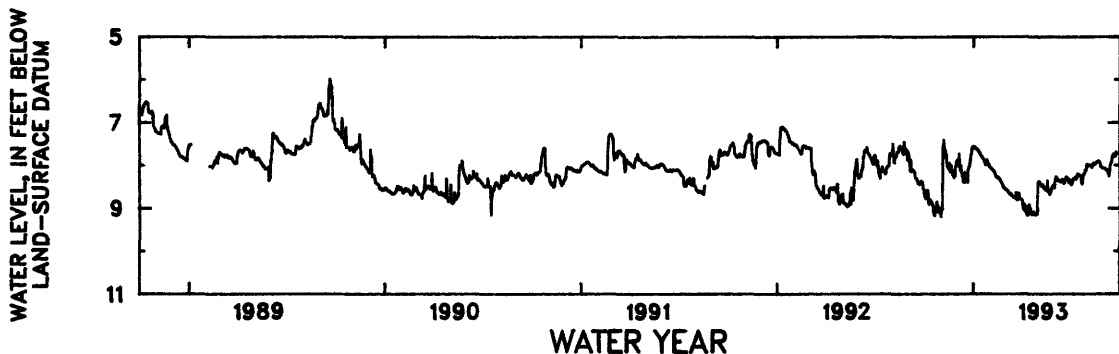
PERIOD OF RECORD.--October 1985 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level recorded, 5.94 ft (1.81 m) below land-surface datum, Sept. 20, 1989; lowest water level recorded, 9.77 ft (2.98 m) below land-surface datum, Mar. 23, 1986.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993
INSTANTANEOUS OBSERVATION AT 1200

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|------|------|------|------|------|------|------|------|------|------|------|------|------|
| 1 | 8.73 | 9.20 | 7.89 | 7.56 | 8.06 | 8.54 | 8.84 | 8.38 | 8.33 | 8.46 | 7.98 | 8.08 |
| 2 | 8.67 | 9.04 | 7.92 | 7.57 | 8.06 | 8.56 | 8.86 | 8.38 | 8.32 | 8.44 | 8.02 | 8.08 |
| 3 | 8.77 | 9.02 | 7.94 | 7.56 | 8.09 | 8.57 | 9.04 | 8.39 | 8.27 | 8.39 | 8.00 | 8.09 |
| 4 | 8.61 | 7.96 | 7.95 | 7.60 | 8.10 | 8.59 | 8.98 | 8.41 | 8.28 | 8.35 | 8.01 | 8.11 |
| 5 | 8.77 | 7.60 | 7.73 | 7.61 | 8.11 | 8.59 | 8.90 | 8.46 | 8.33 | 8.32 | 8.00 | 8.10 |
| 6 | 8.76 | 7.40 | 8.08 | 7.60 | 8.12 | 8.61 | 9.09 | 8.49 | 8.36 | 8.31 | 8.00 | 8.13 |
| 7 | 8.57 | 7.58 | 8.12 | 7.62 | 8.14 | 8.64 | 8.95 | 8.45 | 8.36 | 8.32 | 8.01 | 8.15 |
| 8 | 8.79 | 7.74 | 8.00 | 7.63 | 8.15 | 8.65 | 9.07 | 8.45 | 8.36 | 8.29 | 8.03 | 8.19 |
| 9 | 8.91 | 7.65 | 8.11 | 7.65 | 8.19 | 8.68 | 9.13 | 8.46 | 8.35 | 8.31 | 8.05 | 8.21 |
| 10 | 8.79 | 7.82 | 8.19 | 7.67 | 8.23 | 8.66 | 9.16 | 8.48 | 8.36 | 8.33 | 7.99 | 8.26 |
| 11 | 8.79 | 7.75 | 8.26 | 7.70 | 8.27 | 8.67 | 9.18 | 8.52 | 8.37 | 8.31 | 7.97 | 8.08 |
| 12 | 8.81 | 7.95 | 8.33 | 7.69 | 8.27 | 8.68 | 9.07 | 8.54 | 8.39 | 8.23 | 7.95 | 8.02 |
| 13 | 8.84 | 8.03 | 8.39 | 7.72 | 8.27 | 8.71 | 8.94 | 8.56 | 8.38 | 8.20 | 7.96 | 7.96 |
| 14 | 8.87 | 7.97 | 8.41 | 7.75 | 8.29 | 8.72 | 8.92 | 8.56 | 8.36 | 8.24 | 7.98 | 7.93 |
| 15 | 8.89 | 8.09 | 8.38 | 7.79 | 8.30 | 8.73 | 9.02 | 8.58 | 8.33 | 8.24 | 7.97 | 7.85 |
| 16 | 8.93 | 7.99 | 8.16 | 7.79 | 8.29 | 8.74 | 9.01 | 8.59 | 8.38 | 8.23 | 7.95 | 7.80 |
| 17 | 8.93 | 7.95 | 8.27 | 7.82 | 8.31 | 8.76 | 9.11 | 8.52 | 8.42 | 8.24 | 7.93 | 7.76 |
| 18 | 9.10 | 8.17 | 8.32 | 7.84 | 8.32 | 8.76 | 9.14 | 8.36 | 8.40 | 8.25 | 7.91 | 7.74 |
| 19 | 9.16 | 8.15 | 8.35 | 7.86 | 8.34 | 8.75 | 9.15 | 8.62 | 8.41 | 8.24 | 7.92 | 7.80 |
| 20 | 9.17 | 7.99 | 8.38 | 7.87 | 8.36 | 8.77 | 9.15 | 8.63 | 8.34 | 8.39 | 7.92 | 7.78 |
| 21 | 9.03 | 8.16 | 8.40 | 7.91 | 8.38 | 8.64 | 9.10 | 8.65 | 8.33 | 8.44 | 7.91 | 7.80 |
| 22 | 9.01 | 8.23 | 8.10 | 7.94 | 8.40 | 8.80 | 9.09 | 8.68 | 8.27 | 8.41 | 7.90 | 7.73 |
| 23 | 9.09 | 8.13 | 8.05 | 7.99 | 8.44 | 8.81 | 9.10 | 8.65 | 8.28 | 8.29 | 7.93 | 7.70 |
| 24 | 8.84 | 8.23 | 8.02 | 7.99 | 8.45 | 8.72 | 9.14 | 8.62 | 8.31 | 8.23 | 7.97 | 7.71 |
| 25 | 8.96 | 8.26 | 7.96 | 7.98 | 8.51 | 8.69 | 9.15 | 8.56 | 8.31 | 8.20 | 8.02 | 7.73 |
| 26 | 8.94 | 8.30 | 7.87 | 7.86 | 8.50 | 8.66 | 9.16 | 8.54 | 8.38 | 8.19 | 8.04 | 7.74 |
| 27 | 9.08 | 8.25 | 7.76 | 7.96 | 8.54 | 8.75 | 9.15 | 8.51 | 8.40 | 8.12 | 8.05 | 7.74 |
| 28 | 8.99 | 8.03 | 7.71 | 7.97 | 8.56 | 8.79 | 9.13 | 8.48 | 8.33 | 8.12 | 8.06 | 7.74 |
| 29 | 9.07 | 8.02 | 7.62 | 7.98 | --- | 8.79 | 9.12 | 8.50 | 8.43 | 8.12 | 8.07 | 7.71 |
| 30 | 9.11 | 7.93 | 7.57 | 8.03 | --- | 8.80 | 8.47 | 8.51 | 8.44 | 8.00 | 8.07 | 7.67 |
| 31 | 9.03 | --- | 7.56 | 8.05 | --- | 8.80 | --- | 8.53 | --- | 7.98 | 8.07 | --- |
| MEAN | 8.90 | 8.09 | 8.06 | 7.79 | 8.29 | 8.70 | 9.04 | 8.52 | 8.35 | 8.26 | 7.99 | 7.91 |

WTR YR 1993 MEAN 8.33 HIGHEST 7.38 NOV. 6, 1992 LOWEST 9.22 APR. 10, 26, 1993



GROUND-WATER LEVELS

RIO HONDO TO RIO PUERTO NUEVO BASINS

182441066082600. Local number, 219.

LOCATION.--Lat 18°24'41", long 66°08'26", Hydrologic Unit 21010005, 0.47 mi west of Fort Buchanan Military Res. main gate, 1.74 mi northeast of Bayamón plaza, and 1.88 mi southwest of P.R. National Cemetery. Owner: U.S. Department of Defense, Name: Ft. Buchanan No. 1, Buchanan Park well.

AQUIFER.--Cibao Formation.

WELL CHARACTERISTICS.--Drilled water-table well, diameter 10 in (0.25 m), cased 10 in (0.25 m) 0-270 ft (0-82.3 m), perforated 46-685 ft (14.0-20.7 m), 88-120 ft (26.8-36.6 m), 160-191 ft (48.8-58.2 m), 240-270 ft (73.2-82.3 m). Depth 270 ft (82.3 m).

INSTRUMENTATION.--Digital water level recorder--60-minute punch.

DATUM.--Elevation of land-surface datum is about 66.0 ft (20.1 m) above mean sea level, from topographic map.

Measuring point: Hole on side of casing, 0.75 ft (0.23 m) above land-surface datum. Prior June 30, 1986, top of shelter floor, 3.59 ft (1.09 m) above land-surface datum.

REMARKS.--Recording observation well.

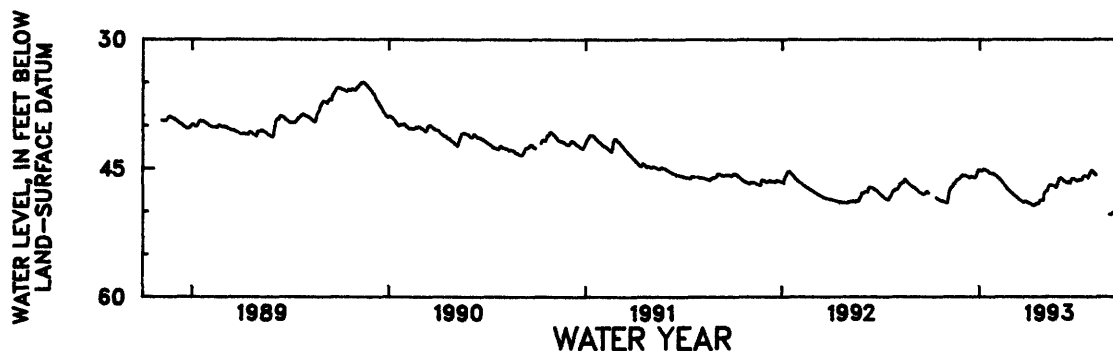
PERIOD OF RECORD.--December 1985 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level recorded, 34.97 ft (10.66 m) below land-surface datum, Nov. 12-14 1989; lowest water level recorded, 50.40 ft (15.4 m) below land-surface datum, Aug. 30, 1993.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993
INSTANTANEOUS OBSERVATION AT 1200

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| 1 | --- | 49.00 | 45.75 | 45.16 | 45.82 | 47.80 | 49.00 | 47.88 | 46.09 | 46.45 | 45.39 | 50.36 |
| 2 | --- | 49.01 | 45.76 | 45.17 | 45.88 | 47.88 | 49.04 | 47.73 | 46.16 | 46.46 | 45.49 | 50.36 |
| 3 | --- | 48.98 | 45.79 | 45.18 | 45.94 | 47.97 | 49.05 | 47.69 | 46.22 | 46.42 | 45.59 | 50.33 |
| 4 | --- | 48.42 | 45.78 | 45.21 | 46.05 | 48.02 | 49.07 | 47.62 | 46.27 | 46.35 | 45.66 | 50.27 |
| 5 | --- | 48.02 | 45.78 | 45.22 | 46.09 | 48.03 | 49.08 | 47.61 | 46.34 | 46.31 | 45.72 | 50.20 |
| 6 | --- | 47.58 | 45.78 | 45.21 | 46.11 | 48.08 | 49.14 | 47.58 | 46.40 | 46.32 | 45.79 | 50.17 |
| 7 | --- | 47.46 | 45.81 | 45.20 | 46.16 | 48.17 | 49.18 | 47.46 | 46.43 | 46.35 | --- | 50.13 |
| 8 | --- | 47.31 | 45.84 | 45.12 | 46.21 | 48.21 | 49.22 | 47.20 | 46.46 | 46.29 | --- | 50.10 |
| 9 | --- | 47.21 | 45.85 | 45.06 | 46.29 | 48.24 | 49.27 | 47.05 | 46.49 | 46.28 | --- | 50.07 |
| 10 | --- | 47.15 | 45.90 | 45.10 | 46.35 | 48.29 | 49.28 | 47.00 | 46.56 | 46.31 | --- | 50.03 |
| 11 | --- | 47.10 | 45.93 | 45.11 | 46.42 | 48.37 | 49.31 | 46.96 | 46.61 | 46.25 | --- | 49.87 |
| 12 | --- | 47.07 | 46.00 | 45.13 | 46.50 | 48.41 | 49.25 | 46.91 | 46.66 | 46.02 | --- | 49.74 |
| 13 | 48.42 | 46.91 | 46.07 | 45.16 | 46.60 | 48.45 | 49.23 | 46.92 | 46.69 | 45.91 | --- | 49.64 |
| 14 | 48.50 | 46.82 | 46.10 | 45.19 | 46.69 | 48.51 | 49.22 | 46.93 | 46.61 | 45.88 | --- | 49.57 |
| 15 | 48.55 | 46.74 | 46.03 | 45.23 | 46.77 | 48.59 | 49.16 | 46.93 | 46.56 | 45.86 | --- | 49.50 |
| 16 | 48.58 | 46.70 | 45.93 | 45.25 | 46.89 | 48.64 | 49.10 | 46.95 | 46.59 | 45.84 | --- | 49.46 |
| 17 | 48.61 | 46.72 | 45.91 | 45.29 | 46.99 | 48.67 | 49.07 | 46.95 | 46.64 | 45.87 | --- | 49.41 |
| 18 | 48.63 | 46.57 | 45.91 | 45.40 | 47.05 | 48.72 | 49.05 | 46.99 | 46.68 | 45.89 | --- | 49.35 |
| 19 | 48.68 | 46.39 | 45.95 | 45.43 | 47.14 | 48.76 | 49.05 | 47.02 | 46.68 | 45.90 | --- | 49.29 |
| 20 | 48.71 | 46.34 | 45.95 | 45.48 | 47.26 | 48.80 | 49.08 | 47.09 | 46.45 | 45.97 | --- | 49.26 |
| 21 | 48.76 | 46.32 | 45.97 | 45.55 | 47.36 | 48.84 | 49.00 | 47.16 | 46.27 | 46.04 | --- | 49.22 |
| 22 | 48.75 | 46.29 | 46.02 | 45.57 | 47.40 | 48.87 | 48.79 | 47.20 | 46.17 | 46.07 | --- | 49.10 |
| 23 | 48.77 | 46.23 | 46.07 | 45.56 | 47.44 | 48.94 | 48.70 | 47.22 | 46.17 | 45.92 | --- | 48.98 |
| 24 | 48.80 | 46.20 | 46.06 | 45.56 | 47.48 | 48.96 | 48.72 | 47.06 | 46.18 | 45.69 | --- | 48.91 |
| 25 | 48.83 | 46.15 | 45.99 | 45.55 | 47.58 | 48.86 | 48.70 | 46.86 | 46.20 | 45.51 | --- | 48.87 |
| 26 | 48.87 | 46.12 | 45.84 | 45.56 | 47.67 | 48.82 | 48.67 | 46.71 | 46.22 | 45.36 | --- | 48.83 |
| 27 | 48.92 | 46.04 | 45.66 | 45.58 | 47.72 | 48.82 | 48.66 | 46.56 | 46.23 | 45.27 | --- | 48.75 |
| 28 | 48.92 | 45.93 | 45.49 | 45.66 | 47.78 | 48.83 | 48.68 | 46.35 | 46.29 | 45.22 | --- | 48.75 |
| 29 | 48.94 | 45.91 | 45.29 | 45.71 | --- | 48.85 | 48.70 | 46.21 | 46.34 | 45.23 | --- | 48.76 |
| 30 | 48.97 | 45.82 | 45.17 | 45.77 | --- | 48.88 | 48.24 | 46.13 | 46.40 | 45.26 | 50.39 | 48.81 |
| 31 | 49.00 | --- | 45.14 | 45.81 | --- | 48.95 | --- | 46.09 | --- | 45.33 | 50.38 | --- |
| MEAN | 48.75 | 46.95 | 45.82 | 45.36 | 46.77 | 48.52 | 48.99 | 47.03 | 46.40 | 45.93 | 46.80 | 49.54 |

WTR YR 1993 MEAN 47.21 HIGHEST 45.03 JAN. 9, 1993 LOWEST 50.40 AUG. 30, 1993



GROUND-WATER LEVELS

RIO HONDO TO RIO PUERTO NUEVO BASINS

182413066044000. Local number, 220.

LOCATION.--Lat 18°24'13", long 66°04'40", Hydrologic Unit 21010005, 3.85 mi southeast of Cataño plaza, 0.86 mi east of Escuela Gabriela Mistral, and 1.26 mi south of Nemesio Canales Public Housing. Owner: P.R. Aqueduct and Sewer Authority, Name: Parque San Luis Rey-Américo Miranda

AQUIFER.--Surficial Deposits-Cibao Formation.

WELL CHARACTERISTICS.--Drilled unused artesian well, diameter 10 in (0.25 m), cased 8 in (0.20 m) 0-166 ft (0-50.6 m), perforated 39-166 ft (11.9-50.6 m). Depth 166 ft (50.6 m).

INSTRUMENTATION.--Digital water level recorder--60-minute punch.

DATUM.--Elevation of land-surface datum is about 16.4 ft (5.0 m) above mean sea level, from topographic map.

Measuring point: Top of shelter floor, 3.00 ft (0.91 m) above land-surface datum.

REMARKS.--Recording observation well. Water levels affected by nearby pumping well.

PERIOD OF RECORD.--February 1986 to current year.

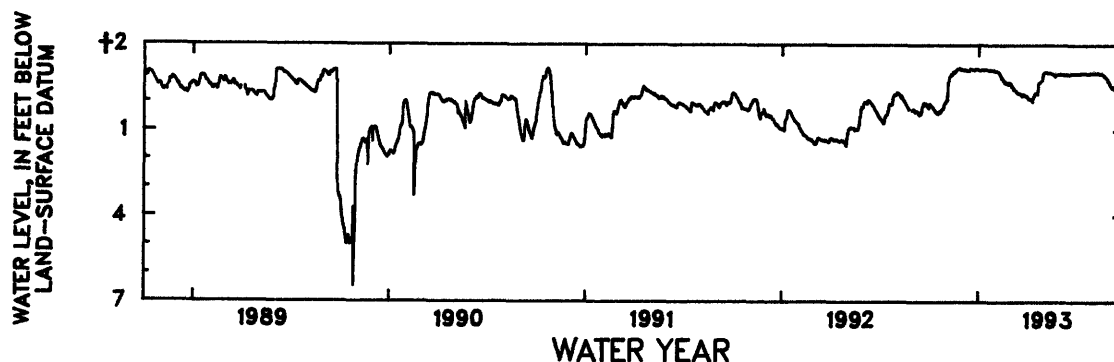
EXTREMES FOR PERIOD OF RECORD.--Highest water level recorded, +2.99 ft (+0.91 m) above land-surface datum, Feb. 6, May 8-9, 1986; lowest water level recorded, 6.48 ft (1.98 m) below land-surface datum, Oct. 26, 1989

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993
INSTANTANEOUS OBSERVATION AT 1200

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|------|------|-------|-------|-------|-------|------|-------|-------|-------|-------|-------|------|
| 1 | .06 | +.06 | +1.15 | +1.14 | +1.09 | +.67 | +.21 | +1.03 | +1.00 | +1.00 | +1.03 | +.67 |
| 2 | .05 | +.06 | +1.15 | +1.13 | +1.09 | +.65 | +.19 | +1.04 | +1.00 | +1.00 | +1.03 | +.62 |
| 3 | .10 | +.10 | +1.15 | +1.13 | +1.09 | +.56 | +.15 | +1.05 | +1.00 | +1.01 | +1.02 | +.59 |
| 4 | .12 | +.53 | +1.14 | +1.14 | +1.08 | +.55 | +.12 | +1.06 | +.99 | +1.01 | +1.02 | +.56 |
| 5 | .13 | +.73 | +1.14 | +1.14 | +1.07 | +.55 | +.13 | +1.07 | +.99 | +1.01 | +1.02 | +.54 |
| 6 | .15 | +.86 | +1.15 | +1.15 | +1.06 | +.52 | +.11 | +1.07 | +.99 | +1.01 | +1.04 | +.50 |
| 7 | .17 | +.92 | +1.14 | +1.15 | +1.04 | +.45 | +.11 | +1.07 | +.98 | +1.01 | +1.03 | +.55 |
| 8 | .20 | +.93 | +1.14 | +1.15 | +1.01 | +.46 | +.10 | +1.04 | +.99 | +1.01 | +1.03 | +.55 |
| 9 | .23 | +.98 | +1.12 | +1.14 | +.98 | +.45 | +.11 | +1.04 | +.98 | +1.02 | +1.03 | +.52 |
| 10 | .27 | +.97 | +1.11 | +1.15 | +.93 | +.42 | +.11 | +1.04 | +.98 | +1.02 | +1.04 | +.48 |
| 11 | .29 | +.96 | +1.11 | +1.15 | +.85 | +.40 | +.03 | +1.04 | +.98 | +1.02 | +1.02 | +.45 |
| 12 | .33 | +.98 | +1.11 | +1.16 | +.86 | +.38 | +.16 | +1.05 | +.98 | +1.03 | +1.02 | +.44 |
| 13 | .35 | +1.02 | +1.10 | +1.16 | +.84 | +.34 | +.20 | +1.04 | +.98 | +1.03 | +1.01 | +.41 |
| 14 | .36 | +1.08 | +1.11 | +1.17 | +.81 | +.33 | +.23 | +1.05 | +1.00 | +1.03 | +1.01 | +.38 |
| 15 | .38 | +1.06 | +1.17 | +1.15 | +.78 | +.32 | +.30 | +1.03 | +.98 | +1.02 | +1.01 | +.35 |
| 16 | .35 | +1.04 | +1.18 | +1.15 | +.76 | +.32 | +.33 | +1.01 | +.98 | +1.02 | +1.02 | +.34 |
| 17 | .40 | +1.06 | +1.17 | +1.15 | +.74 | +.33 | +.32 | +1.01 | +.98 | +1.02 | +1.01 | +.31 |
| 18 | .33 | +1.10 | +1.17 | +1.14 | +.71 | +.31 | +.32 | +1.02 | +.98 | +1.02 | +1.00 | +.33 |
| 19 | .31 | +1.11 | +1.16 | +1.14 | +.67 | +.31 | +.31 | +1.00 | +.99 | +1.02 | +.98 | +.31 |
| 20 | .33 | +1.13 | +1.16 | +1.15 | +.71 | +.31 | +.29 | +.97 | +1.00 | +1.02 | +.97 | +.29 |
| 21 | .36 | +1.17 | +1.15 | +1.14 | +.69 | +.26 | +.44 | +.96 | +1.01 | +1.00 | +.94 | +.25 |
| 22 | .31 | +1.18 | +1.14 | +1.15 | +.66 | +.23 | +.64 | +.94 | +1.01 | +1.01 | +.93 | +.23 |
| 23 | .29 | +1.19 | +1.13 | +1.14 | +.66 | +.24 | +.70 | +.93 | +1.01 | +1.01 | +.92 | +.18 |
| 24 | .25 | +1.19 | +1.14 | +1.12 | +.64 | +.24 | +.71 | +.98 | +1.01 | +1.02 | +.89 | +.15 |
| 25 | .22 | +1.20 | +1.16 | +1.12 | +.64 | +.29 | +.71 | +.98 | +1.01 | +1.02 | +.87 | +.09 |
| 26 | .22 | +1.21 | +1.18 | +1.12 | +.70 | +.27 | +.73 | +.99 | +1.01 | +1.02 | +.85 | +.04 |
| 27 | .18 | +1.17 | +1.18 | +1.12 | +.67 | +.26 | +.76 | +.99 | +1.00 | +1.03 | +.83 | +.03 |
| 28 | .06 | +1.16 | +1.18 | +1.12 | +.64 | +.25 | +.77 | +1.00 | +1.00 | +1.03 | +.80 | +.53 |
| 29 | .04 | +1.18 | +1.16 | +1.12 | --- | +.23 | +.83 | +1.00 | +1.01 | +1.03 | +.75 | +.51 |
| 30 | .01 | +1.15 | +1.16 | +1.10 | --- | +.24 | +1.02 | +1.00 | +1.01 | +1.03 | +.72 | +.49 |
| 31 | +.02 | --- | +1.16 | +1.10 | --- | +.21 | --- | +1.00 | --- | +1.03 | +.72 | --- |
| MRAN | .22 | +.95 | +1.15 | +1.14 | +.84 | +.37 | +.37 | +1.02 | +.99 | +1.02 | +.95 | +.39 |

WTR YR 1993 MRAN +.75 HIGHEST +1.22 NOV. 26, 1992 LOWEST .45 OCT. 15, 1992

+ Above land-surface datum.



GROUND-WATER LEVELS

RIO HONDO TO RIO PUERTO NUEVO BASINS

182511066045401. Local number, PN-2.

LOCATION.--Lat 18°25'11, long 66°04'54", Hydrologic Unit 21010005, 1.58 mi northeast of Fort Buchanan Military Res. main gate, 2.95 mi southeast of Cata-o plaza, and 2.45 mi southeast of U.S. Naval Reservation in Miramar.

Owner: U.S. Geological Survey, WRD, Name: La Esperanza No. 2.

AQUIFER.--Alluvium.

WELL CHARACTERISTICS.--Drilled observation well, diameter 4 in (0.10 m), cased 4 in (0.10 m), 0-40 ft (0-12.2 m), perforated 30-40 ft (9.15-12.2 m). Depth 40 ft (12.2 m).

INSTRUMENTATION.--Digital water level recorder--15-minute punch.

DATUM.--Elevation of land-surface datum is about 13 ft (3.96 m) above mean sea level, from topographic map.

Measuring point: Hole on well shaft, 3.17 ft (0.97 m) above land-surface datum.

REMARKS.--Recording observation well.

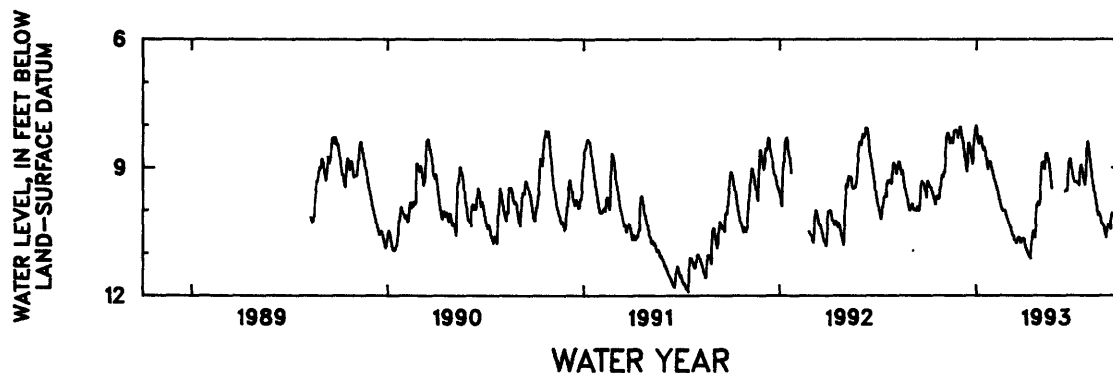
PERIOD OF RECORD.--July 1989 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level recorded, 8.01 ft (2.44 m) below land-surface datum, Dec. 30-31, 1992; lowest water level recorded, 11.90 ft (3.63 m) below land-surface datum, July 15-16, 1991.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993
INSTANTANEOUS OBSERVATION AT 1200

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|------|------|------|------|------|-------|-------|-------|------|------|------|-------|-------|
| 1 | 9.42 | 9.15 | 8.04 | 8.10 | 9.18 | 10.27 | 10.80 | 8.96 | --- | 9.28 | 8.93 | 10.39 |
| 2 | 9.31 | 9.11 | 8.12 | 8.22 | 9.22 | 10.30 | 10.84 | 8.88 | --- | 9.33 | 9.02 | 10.35 |
| 3 | 9.32 | 9.10 | 8.21 | 8.34 | 9.27 | 10.34 | 10.89 | 8.90 | --- | 9.34 | 9.12 | 10.35 |
| 4 | 9.36 | 8.73 | 8.30 | 8.40 | 9.30 | 10.37 | 10.92 | 8.87 | --- | 9.34 | 9.23 | 10.34 |
| 5 | 9.40 | 8.34 | 8.30 | 8.43 | 9.35 | 10.40 | 10.96 | 8.94 | --- | 9.34 | 9.33 | 10.34 |
| 6 | 9.46 | 8.26 | 8.35 | 8.42 | 9.39 | 10.45 | 10.97 | 9.02 | --- | 9.34 | 9.38 | 10.37 |
| 7 | 9.46 | 8.20 | 8.44 | 8.36 | 9.44 | 10.51 | 11.01 | 9.03 | --- | 9.36 | 9.45 | 10.43 |
| 8 | 9.47 | 8.20 | 8.56 | 8.27 | 9.48 | 10.55 | 11.03 | 8.83 | --- | 9.37 | 9.55 | 10.20 |
| 9 | 9.49 | 8.19 | 8.65 | 8.29 | 9.54 | 10.58 | 11.06 | 8.67 | --- | 9.36 | 9.60 | 10.12 |
| 10 | 9.55 | 8.27 | 8.76 | 8.35 | 9.59 | 10.59 | 11.09 | 8.67 | --- | 9.37 | 9.70 | 10.07 |
| 11 | 9.59 | 8.34 | 8.84 | 8.44 | 9.67 | 10.60 | 11.12 | 8.68 | --- | 9.42 | 9.78 | 10.07 |
| 12 | 9.65 | 8.42 | 8.95 | 8.52 | 9.74 | 10.68 | 10.93 | 8.67 | --- | 9.10 | 9.86 | 10.10 |
| 13 | 9.70 | 8.35 | 9.04 | 8.55 | 9.78 | 10.70 | 10.78 | 8.79 | --- | 8.98 | 9.95 | 10.12 |
| 14 | 9.74 | 8.32 | 9.09 | 8.58 | 9.84 | 10.70 | 10.68 | 8.87 | --- | 8.94 | 10.03 | 10.12 |
| 15 | 9.79 | 8.31 | 8.76 | 8.52 | 9.90 | 10.72 | 10.52 | 8.92 | 9.56 | 8.99 | 10.08 | 10.12 |
| 16 | 9.86 | 8.34 | 8.49 | 8.55 | 9.94 | 10.76 | 10.49 | 9.02 | 9.56 | 9.02 | 10.11 | 10.12 |
| 17 | 9.87 | 8.42 | 8.43 | 8.61 | 9.99 | 10.76 | 10.48 | 9.10 | 9.53 | 9.11 | 10.06 | 10.13 |
| 18 | 9.75 | 8.36 | 8.43 | 8.71 | 9.98 | 10.68 | 10.52 | 9.21 | 9.53 | 9.17 | 10.11 | 10.14 |
| 19 | 9.67 | 8.16 | 8.49 | 8.80 | 10.02 | 10.66 | 10.58 | 9.33 | 9.53 | 9.26 | 10.15 | 10.17 |
| 20 | 9.68 | 8.14 | 8.55 | 8.89 | 10.01 | 10.63 | 10.63 | 9.43 | 9.15 | 9.27 | 10.19 | 10.22 |
| 21 | 9.68 | 8.13 | 8.67 | 8.95 | 10.01 | 10.63 | 10.32 | 9.49 | 8.88 | 9.35 | 10.26 | 10.27 |
| 22 | 9.71 | 8.15 | 8.75 | 9.03 | 10.01 | 10.66 | 9.95 | --- | 8.83 | 9.41 | 10.32 | 10.37 |
| 23 | 9.73 | 8.12 | 8.83 | 8.94 | 10.01 | 10.70 | 9.86 | --- | 8.80 | 9.21 | 10.32 | 10.37 |
| 24 | 9.63 | 8.13 | 8.91 | 8.90 | 10.05 | 10.75 | 9.89 | --- | 8.80 | 8.85 | 10.34 | 10.46 |
| 25 | 9.51 | 8.16 | 8.84 | 8.86 | 10.11 | 10.75 | 9.81 | --- | 8.89 | 8.55 | 10.37 | 10.46 |
| 26 | 9.47 | 8.21 | 8.61 | 8.86 | 10.14 | 10.69 | 9.83 | --- | 9.00 | 8.51 | 10.43 | 10.51 |
| 27 | 9.41 | 8.29 | 8.35 | 8.90 | 10.19 | 10.67 | 9.88 | --- | 9.05 | 8.38 | 10.50 | 10.58 |
| 28 | 9.24 | 8.20 | 8.20 | 8.97 | 10.22 | 10.66 | 9.85 | --- | 9.12 | 8.47 | 10.55 | 10.58 |
| 29 | 9.18 | 8.12 | 8.09 | 9.02 | --- | 10.65 | 9.68 | --- | 9.18 | 8.57 | 10.57 | 10.56 |
| 30 | 9.17 | 8.05 | 8.02 | 9.07 | --- | 10.66 | 9.26 | --- | 9.24 | 8.68 | 10.63 | 10.53 |
| 31 | 9.22 | --- | 8.02 | 9.13 | --- | 10.69 | --- | --- | --- | 8.82 | 10.49 | --- |
| MEAN | 9.53 | 8.34 | 8.52 | 8.64 | 9.76 | 10.61 | 10.49 | 8.97 | 9.17 | 9.08 | 9.95 | 10.30 |

WTR YR 1993 MEAN 9.47 HIGHEST 8.01 DEC. 30, 31, 1992 LOWEST 11.13 APR. 10, 11, 1993



GROUND-WATER LEVELS

RIO HONDO TO RIO PUERTO NUEVO BASINS

182435066052700. Local number, PN-5.

LOCATION.--Lat 18°24'35", long 66°05'27", Hydrologic Unit 21010005, 2.94 mi southeast of Cata-o plaza, 0.44 mi north of Escuela Superior Gabriela Mistral, and 1.19 mi northeast of WAPA TV radio antenna. Owner: U.S. Geological Survey, WRD, Name: Salud Mental No. 1.

AQUIFER.--Alluvium.

WELL CHARACTERISTICS.--Drilled water-table well, diameter 4.0 in (0.10 m), cased 4.0 in (0.10 m), 0-83 ft (0-25.3 m), perforated 73-83 ft (22.2-25.3 m). Depth 83 ft (25.3 m).

INSTRUMENTATION.--Digital water level recorder--15-minute punch.

DATUM.--Elevation of land-surface datum is about 85 ft (25.9 m) above mean sea level, from topographic map.

Measuring point: Hole on well shaft, 2.85 ft (0.87 m) above land-surface datum.

REMARKS.--Recording observation well.

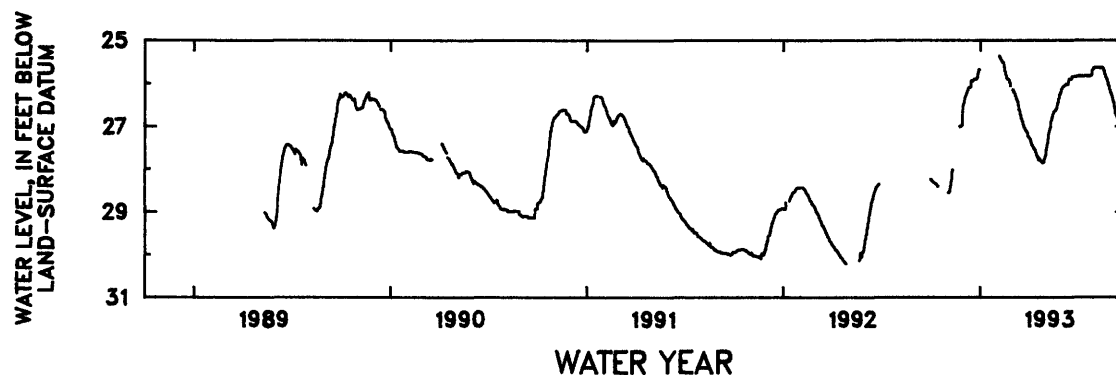
PERIOD OF RECORD.--April 1989 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level recorded, 25.37 ft (7.73 m) below land-surface datum, Feb. 5, 1993; lowest water level recorded, 30.23 ft (9.21 m) below land-surface datum, May 21, 1992.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993
INSTANTANEOUS OBSERVATION AT 1200

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|------|-------|-------|-------|-----|-------|-------|-------|-------|-------|-------|-------|-------|
| 1 | 28.23 | --- | 26.47 | --- | --- | --- | 27.25 | 27.74 | 26.13 | 25.83 | 25.63 | 26.25 |
| 2 | 28.23 | --- | 26.43 | --- | --- | --- | 27.27 | 27.72 | 26.11 | 25.83 | 25.63 | 26.29 |
| 3 | 28.26 | --- | 26.33 | --- | --- | 26.15 | 27.29 | 27.66 | 26.08 | 25.83 | 25.63 | 26.33 |
| 4 | 28.28 | 28.55 | 26.30 | --- | --- | 26.21 | 27.31 | 27.53 | 26.07 | 25.83 | 25.63 | 26.40 |
| 5 | 28.29 | 28.54 | 26.27 | --- | 25.37 | 26.21 | 27.34 | 27.46 | 26.06 | 25.83 | 25.63 | 26.44 |
| 6 | 28.30 | 28.50 | 26.24 | --- | 25.39 | 26.23 | 27.40 | 27.38 | 26.05 | 25.83 | 25.63 | 26.45 |
| 7 | 28.31 | 28.41 | 26.20 | --- | 25.41 | 26.27 | 27.43 | 27.29 | 26.04 | 25.83 | 25.63 | 26.57 |
| 8 | 28.31 | 28.30 | 26.17 | --- | 25.44 | 26.30 | 27.46 | 27.17 | 26.03 | 25.83 | 25.63 | 26.69 |
| 9 | 28.33 | 28.23 | 26.13 | --- | 25.47 | 26.35 | 27.48 | 27.14 | 26.02 | 25.83 | 25.63 | 26.70 |
| 10 | 28.33 | 28.06 | 26.10 | --- | 25.48 | 26.39 | 27.49 | 27.06 | 26.02 | 25.83 | 25.64 | 26.73 |
| 11 | 28.35 | 28.02 | 26.09 | --- | 25.51 | 26.40 | 27.53 | 27.05 | 26.02 | 25.83 | 25.64 | 26.77 |
| 12 | 28.36 | --- | 26.09 | --- | 25.51 | 26.45 | 27.52 | 26.89 | 26.02 | 25.83 | 25.64 | 26.80 |
| 13 | 28.37 | --- | 26.09 | --- | 25.52 | 26.52 | 27.55 | 26.85 | 26.02 | 25.82 | 25.64 | 26.82 |
| 14 | 28.40 | --- | 26.08 | --- | 25.62 | 26.62 | 27.60 | 26.81 | 25.92 | 25.82 | 25.64 | 26.84 |
| 15 | 28.40 | --- | 25.93 | --- | 25.70 | 26.62 | 27.63 | 26.76 | 25.90 | 25.82 | 25.64 | 26.92 |
| 16 | --- | --- | 25.93 | --- | 25.73 | 26.71 | 27.67 | 26.72 | 25.90 | 25.82 | 25.64 | 27.01 |
| 17 | --- | --- | 25.94 | --- | 25.80 | 26.73 | 27.70 | 26.68 | 25.90 | 25.83 | 25.68 | 27.06 |
| 18 | --- | --- | 25.94 | --- | 25.83 | 26.81 | 27.72 | 26.65 | 25.90 | 25.83 | 25.71 | 27.06 |
| 19 | --- | --- | 25.92 | --- | 25.89 | 26.84 | 27.76 | 26.64 | 25.90 | 25.83 | 25.77 | 27.07 |
| 20 | --- | --- | 25.90 | --- | 25.90 | 26.88 | 27.79 | 26.63 | 25.85 | 25.83 | 25.79 | 27.09 |
| 21 | --- | --- | 25.90 | --- | 25.90 | 26.92 | 27.75 | 26.61 | 25.84 | 25.83 | 25.84 | 27.10 |
| 22 | --- | --- | 25.90 | --- | 25.91 | 26.96 | 27.78 | 26.59 | 25.84 | 25.83 | 25.87 | 27.18 |
| 23 | --- | --- | 25.90 | --- | 25.92 | 27.02 | 27.80 | 26.59 | 25.84 | 25.83 | 25.89 | 27.24 |
| 24 | --- | 27.00 | 25.90 | --- | 25.97 | 27.03 | 27.82 | 26.48 | 25.84 | 25.83 | 25.92 | 27.39 |
| 25 | --- | 27.00 | 25.89 | --- | 25.98 | 27.06 | 27.82 | 26.46 | 25.84 | 25.81 | 25.97 | 27.48 |
| 26 | --- | 27.00 | 25.86 | --- | 26.06 | 27.09 | 27.82 | 26.39 | 25.84 | 25.81 | 26.03 | 27.51 |
| 27 | --- | 26.98 | 25.78 | --- | --- | 27.10 | 27.86 | 26.34 | 25.84 | 25.69 | 26.05 | 27.64 |
| 28 | --- | 26.97 | 25.73 | --- | --- | 27.12 | 27.85 | 26.25 | 25.84 | 25.68 | 26.11 | 27.66 |
| 29 | --- | 26.64 | 25.68 | --- | --- | 27.14 | 27.85 | 26.25 | 25.83 | 25.67 | 26.14 | 27.66 |
| 30 | --- | 26.49 | 25.68 | --- | --- | 27.16 | 27.78 | 26.22 | 25.83 | 25.64 | 26.18 | 27.67 |
| 31 | --- | --- | --- | --- | --- | 27.24 | --- | 26.18 | --- | 25.64 | 26.22 | --- |
| MEAN | 28.32 | 27.65 | 26.03 | --- | 25.70 | 26.71 | 27.61 | 26.84 | 25.94 | 25.80 | 25.78 | 26.96 |

WTR YR 1993 MEAN 26.55 HIGHEST 25.37 FEB. 5, 1993 LOWEST 28.66 NOV. 4, 1992



GROUND-WATER LEVELS

RIO HONDO TO RIO PUERTO NUEVO BASINS

182445066043401. Local number, PN-6.

LOCATION.--Lat 18°24'45", long 66°04'34", Hydrologic Unit 21010005, 0.28 mi northeast of Escuela Dr. Pedreira, 3.52 mi southeast of Cataño plaza, and 0.53 mi south of Hiram Bithorn Stadium main gate. Owner: U.S. Geological Survey, WRD, Name: Alsacia No. 2.

AQUIFER.--Alluvium.

WELL CHARACTERISTICS.--Drilled observation well, diameter 4 in (0.10 m), cased 4 in (0.10 m), 0-27 ft (0-8.23 m), perforated 21-27 ft (6.40-8.23 m). Depth 27 ft (8.23 m).

INSTRUMENTATION.--Digital water level recorder--15-minute punch.

DATUM.--Elevation of land-surface datum is about 10 ft (3.05 m) above mean sea level, from topographic map.

Measuring point: Hole on well shaft, 3.03 ft (0.91 m) above land-surface datum.

REMARKS.--Recording observation well. Destroyed by Municipality employee with heavy equipment. Monthly measurement with chalked steel tape by USGS personnel, automatic digital recorder reinstalled on Sept. 9, 1993.

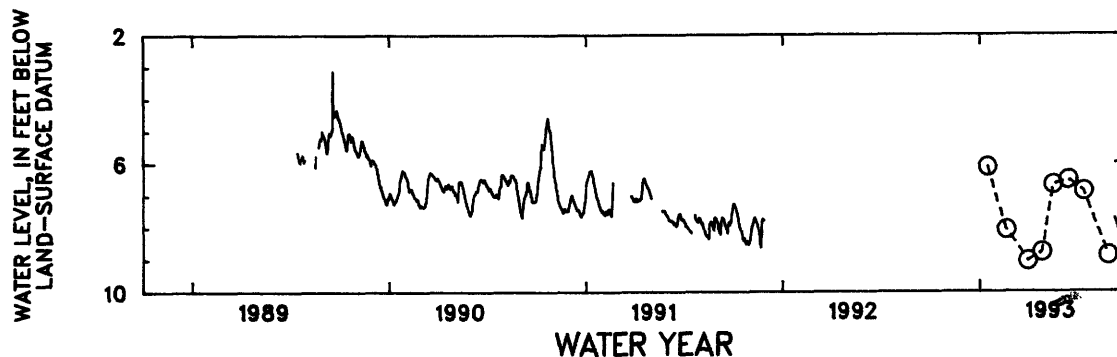
PERIOD OF RECORD.--July 1989 to November 27, 1991, temporary discontinued, September 9, 1993 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level recorded, 3.11 ft (0.95 m) below land-surface datum, Sept. 18, 1989; lowest water level measured, 9.04 ft (2.76 m) below land-surface datum, Mar. 31, 1993.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993
INSTANTANEOUS OBSERVATION AT 1200

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|------|-----|-----|-----|------|------|------|------|------|------|------|------|------|
| 1 | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 2 | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 3 | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 4 | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 5 | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 6 | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 7 | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 8 | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 9 | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | 7.73 |
| 10 | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | 7.78 |
| 11 | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | 7.79 |
| 12 | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | 7.86 |
| 13 | --- | --- | --- | --- | --- | --- | --- | --- | --- | 6.88 | --- | 7.92 |
| 14 | --- | --- | --- | --- | --- | --- | --- | --- | 6.52 | --- | --- | 7.96 |
| 15 | --- | --- | --- | 6.12 | --- | --- | --- | --- | --- | --- | --- | 8.06 |
| 16 | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | 8.06 |
| 17 | --- | --- | --- | --- | --- | --- | --- | 6.67 | --- | --- | --- | 8.06 |
| 18 | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | 7.97 |
| 19 | --- | --- | --- | --- | 8.07 | --- | --- | --- | --- | --- | --- | 8.00 |
| 20 | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | 8.08 |
| 21 | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | 8.16 |
| 22 | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | 8.21 |
| 23 | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | 8.27 |
| 24 | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | 8.22 |
| 25 | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | 8.26 |
| 26 | --- | --- | --- | --- | --- | --- | 8.77 | --- | --- | --- | --- | 8.26 |
| 27 | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | 8.87 | 8.31 |
| 28 | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | 8.28 |
| 29 | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | 8.13 |
| 30 | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | 8.13 |
| 31 | --- | --- | --- | --- | --- | 9.04 | --- | --- | --- | --- | --- | --- |
| MEAN | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | 8.07 |

WTR YR 1993 MEAN 7.95 HIGHEST 6.12 JAN. 15, 1993 LOWEST 9.04 MAR. 21, 1993



GROUND-WATER LEVELS

473

RIO HONDO TO RIO PUERTO NUEVO BASINS

182437066040500. Local number, PN-7.

LOCATION.--Lat 18°24'37", long 66°04'05", Hydrologic Unit 21010005, 4.03 mi southeast of Cataño plaza, 0.70 mi east of Escuela Dr. Pedreira, and 0.25 southeast of Hospital del Maestro. Owner: U.S. Geological Survey, WRD,
 Name: Parque de las Fuentes No. 1.

AQUIFER.--Alluvium.

WELL CHARACTERISTICS.--Drilled observation well, diameter 4 in (0.10 m), cased 4 in (0.10 m), 0-52 ft (0-15.8 m), perforated 42-52 ft (12.8-15.8 m). Depth 52 ft (15.8 m).

INSTRUMENTATION.--Digital water level recorder--15-minute punch.

DATUM.--Elevation of land-surface datum is about 23 ft (7.01 m) above mean sea level, from levels.

Measuring point: Hole on well shelter floor, 3.20 ft (0.98 m) above land-surface datum.

REMARKS.--Recording observation well. Formerly published as 182437066040501, Parque de las Fuentes No. 2, which is another well.

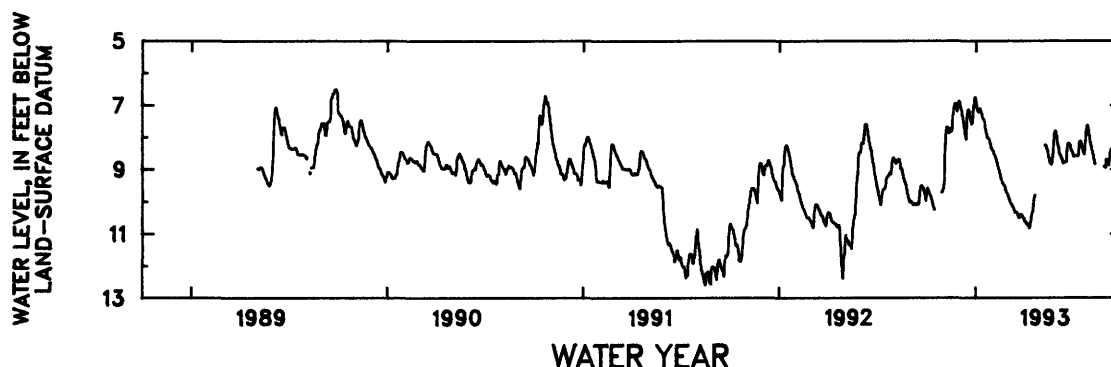
PERIOD OF RECORD.--February 1989 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level recorded, 6.50 ft (1.98 m) below land-surface datum, Sept. 27, 1989; lowest water level recorded, 12.60 ft (3.84 m) below land-surface datum, Aug. 16-17, 1991.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993
 INSTANTANEOUS OBSERVATION AT 1200

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|------|-------|------|------|------|------|-------|-------|------|------|------|------|-------|
| 1 | 9.69 | 9.60 | 6.87 | 6.87 | 8.40 | 9.76 | 10.54 | --- | 7.98 | 8.54 | 8.01 | 8.69 |
| 2 | 9.59 | 9.55 | 6.89 | 6.96 | 8.42 | 9.80 | 10.60 | --- | 8.15 | 8.59 | 8.15 | 8.70 |
| 3 | 9.58 | 9.46 | 7.02 | 7.09 | 8.50 | 9.87 | 10.62 | --- | 8.23 | 8.59 | 8.21 | 8.72 |
| 4 | 9.66 | 8.57 | 7.08 | 7.14 | 8.54 | 9.90 | 10.64 | --- | 8.31 | 8.59 | 8.30 | 8.74 |
| 5 | 9.68 | 8.16 | 7.15 | 7.19 | 8.56 | 9.94 | 10.67 | --- | 8.43 | 8.58 | 8.40 | 8.78 |
| 6 | 9.73 | 7.90 | 7.24 | 7.21 | 8.60 | 9.99 | 10.68 | --- | 8.52 | 8.58 | 8.43 | 8.87 |
| 7 | 9.77 | 7.71 | 7.34 | 7.18 | 8.64 | 10.04 | 10.70 | --- | 8.57 | 8.58 | 8.53 | 8.69 |
| 8 | 9.82 | 7.68 | 7.42 | 7.11 | 8.70 | 10.07 | 10.73 | --- | 8.57 | 8.58 | 8.62 | 8.49 |
| 9 | 9.85 | 7.68 | 7.53 | 7.10 | 8.78 | 10.09 | 10.75 | --- | 8.60 | 8.58 | 8.69 | 8.40 |
| 10 | 9.93 | 7.71 | 7.64 | 7.16 | 8.82 | 10.12 | 10.77 | 8.25 | 8.65 | 8.58 | 8.77 | 8.38 |
| 11 | 9.98 | 7.81 | 7.75 | 7.22 | 8.91 | 10.16 | 10.82 | 8.25 | 8.70 | 8.53 | 8.84 | 8.37 |
| 12 | 10.04 | 7.86 | 7.89 | 7.28 | 8.98 | 10.18 | 10.70 | 8.25 | 8.78 | 8.25 | --- | 8.36 |
| 13 | 10.11 | 7.82 | 7.97 | 7.36 | 9.00 | 10.23 | 10.64 | 8.33 | 8.81 | 8.16 | --- | 8.44 |
| 14 | 10.16 | 7.74 | 8.07 | 7.40 | 9.05 | 10.28 | 10.57 | 8.39 | --- | 8.13 | --- | 8.45 |
| 15 | 10.21 | 7.72 | 7.56 | 7.44 | 9.14 | 10.33 | 10.46 | 8.42 | 8.78 | 8.13 | --- | 8.48 |
| 16 | 10.25 | 7.72 | 7.26 | 7.44 | 9.22 | 10.33 | 10.37 | 8.57 | 8.78 | 8.14 | --- | 8.52 |
| 17 | --- | 7.81 | 7.15 | 7.49 | 9.30 | 10.33 | 10.30 | 8.64 | 8.77 | 8.20 | --- | 8.53 |
| 18 | --- | 7.68 | 7.14 | 7.62 | 9.31 | 10.33 | 10.24 | 8.70 | 8.77 | 8.29 | --- | 8.53 |
| 19 | --- | 7.30 | 7.17 | 7.72 | --- | 10.35 | 9.96 | 8.80 | 8.75 | 8.39 | --- | 8.54 |
| 20 | --- | 7.25 | 7.24 | 7.82 | 9.41 | 10.40 | 9.85 | 8.81 | 8.40 | 8.40 | --- | 8.59 |
| 21 | --- | 7.06 | 7.35 | 7.91 | 9.43 | 10.45 | 9.81 | 8.83 | 8.23 | 8.50 | --- | 8.75 |
| 22 | --- | 7.01 | 7.42 | 8.01 | 9.47 | 10.49 | 9.81 | 8.85 | 8.21 | 8.53 | --- | 9.07 |
| 23 | --- | 6.96 | 7.51 | 8.01 | 9.49 | 10.51 | --- | 8.76 | 8.19 | 8.40 | --- | 9.33 |
| 24 | --- | 6.94 | 7.58 | 8.01 | 9.51 | 10.45 | --- | 8.63 | 8.19 | 8.12 | --- | 9.52 |
| 25 | --- | 7.04 | 7.54 | 8.05 | 9.56 | 10.41 | --- | 8.43 | 8.22 | 7.87 | --- | 9.70 |
| 26 | --- | 7.14 | 7.39 | 8.06 | 9.64 | 10.40 | --- | 8.26 | 8.27 | 7.79 | --- | 9.73 |
| 27 | --- | 7.19 | 7.19 | 8.15 | 9.69 | 10.40 | --- | 7.95 | 8.37 | 7.64 | --- | 9.75 |
| 28 | --- | 7.09 | 7.04 | 8.21 | 9.72 | 10.41 | --- | 7.87 | 8.42 | 7.62 | 8.91 | 9.87 |
| 29 | --- | 7.03 | 6.90 | 8.32 | --- | 10.46 | --- | 7.80 | 8.44 | 7.69 | 8.93 | 9.53 |
| 30 | 9.70 | 6.89 | 6.75 | 8.34 | --- | 10.49 | --- | 7.80 | 8.45 | 7.78 | 8.94 | 10.26 |
| 31 | 9.66 | --- | 6.75 | 8.37 | --- | --- | --- | 7.92 | --- | 7.93 | 8.95 | --- |
| MEAN | 9.86 | 7.70 | 7.32 | 7.59 | 9.07 | 10.23 | 10.46 | 8.39 | 8.47 | 8.27 | 8.58 | 8.89 |

WTR YR 1993 MEAN 8.65 HIGHEST 6.74 DEC. 30, 1992 LOWEST 10.82 APR. 11, 1993



GROUND-WATER LEVELS

RIO HONDO TO RIO PUERTO NUEVO BASINS

182443066041502. Local number, PN-8c.

LOCATION.--Lat 18°24'43", long 66°04'15", Hydrologic Unit 21010005, 2.29 mi east of Fort Buchanan Military Res. main gate, 3.83 mi southeast of Cataño plaza, and 0.16 mi southwest of Hospital del Maestro. Owner: U.S. Geological Survey, WRD, Name: Parque Luis Muñoz Marín 1C.

AQUIFER.--Alluvium.

WELL CHARACTERISTICS.--Drilled observation well, diameter 4 in (0.10 m), cased 4 in (0.10), 0-33 ft (0-10.1 m), perforated 33-40 ft (10.1-12.2 m). Depth 40 ft (12.2 m).

INSTRUMENTATION.--Digital water level recorder--15-minute punch.

DATUM.--Elevation of land-surface datum is about 13 ft (3.96 m) above mean sea level, from topographic map.

Measuring point: Hole on well shaft, 3.66 ft (1.12 m) above land-surface datum.

REMARKS.--Recording observation well.

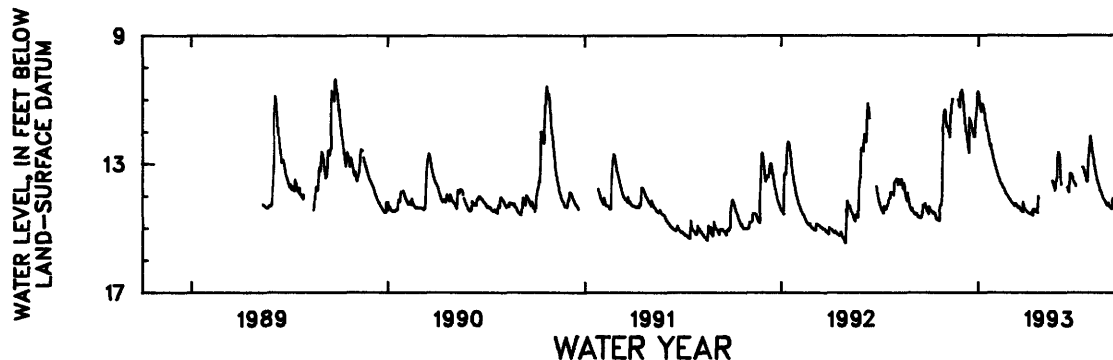
PERIOD OF RECORD.--February 1989 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level recorded, 10.35 ft (3.15 m) below land-surface datum, Sept. 25, 1989; lowest water level recorded, 15.46 ft (4.71 m) below land-surface datum, Apr. 28-29, 1992.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993
INSTANTANEOUS OBSERVATION AT 1200

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| 1 | 14.32 | 11.53 | 10.71 | 10.81 | 13.07 | 14.11 | 14.50 | --- | 13.03 | 13.70 | 12.74 | 14.30 |
| 2 | 14.36 | 11.73 | 10.84 | 10.94 | 13.14 | 14.16 | 14.51 | --- | 13.42 | --- | 12.85 | 14.34 |
| 3 | 14.42 | 11.85 | 11.01 | 11.08 | 13.18 | 14.18 | 14.53 | --- | 13.57 | --- | 12.99 | 14.36 |
| 4 | 14.44 | 11.81 | 11.13 | 11.21 | 13.25 | 14.20 | 14.54 | --- | 13.65 | --- | 13.08 | 14.38 |
| 5 | 14.45 | 11.86 | 11.33 | 11.31 | 13.29 | 14.21 | 14.54 | --- | --- | --- | 13.17 | 14.40 |
| 6 | 14.48 | 11.96 | 11.53 | 11.37 | 13.35 | 14.23 | 14.54 | --- | --- | --- | 13.26 | 14.40 |
| 7 | 14.51 | 12.05 | 11.73 | 11.24 | 13.41 | 14.26 | 14.56 | --- | --- | --- | 13.32 | 14.07 |
| 8 | 14.55 | 12.16 | 11.87 | 11.13 | 13.45 | 14.28 | 14.56 | --- | --- | --- | 13.41 | 14.17 |
| 9 | 14.49 | 11.94 | 12.01 | 11.16 | 13.51 | 14.30 | 14.52 | --- | --- | --- | 13.49 | 14.20 |
| 10 | 14.54 | 11.38 | 12.14 | 11.24 | 13.55 | 14.23 | 14.56 | --- | --- | --- | 13.55 | 14.23 |
| 11 | 14.52 | 11.44 | 12.27 | 11.32 | 13.58 | 14.23 | 14.60 | --- | --- | --- | 13.61 | 14.19 |
| 12 | 14.58 | 11.13 | 12.43 | 11.43 | 13.61 | 14.25 | 14.41 | --- | --- | --- | 13.67 | 14.27 |
| 13 | 14.65 | 11.07 | 12.57 | 11.54 | 13.63 | 14.28 | 14.49 | --- | --- | 13.10 | 13.72 | 14.29 |
| 14 | 14.71 | 10.99 | 12.66 | 11.66 | 13.68 | 14.32 | 14.40 | --- | --- | 13.12 | 13.79 | 14.31 |
| 15 | 14.71 | --- | 11.55 | 11.78 | 13.72 | 14.36 | 14.41 | --- | 13.74 | 13.17 | 13.85 | 14.34 |
| 16 | 14.74 | --- | 11.62 | 11.84 | 13.73 | 14.37 | 14.48 | --- | 13.72 | 13.20 | 13.85 | 14.35 |
| 17 | 14.70 | --- | 11.64 | 11.96 | 13.76 | 14.32 | 14.49 | --- | 13.83 | 13.29 | 13.90 | 14.38 |
| 18 | 14.73 | --- | 11.71 | 12.07 | 13.77 | 14.36 | 14.48 | 13.53 | 13.89 | 13.35 | 13.95 | 14.30 |
| 19 | 14.73 | --- | 11.79 | 12.15 | 13.85 | 14.39 | 14.51 | 13.59 | 13.59 | 13.40 | 14.00 | 14.33 |
| 20 | 14.77 | --- | 11.89 | 12.25 | 13.88 | 14.42 | 14.52 | 13.64 | 13.28 | 13.50 | 14.04 | 14.37 |
| 21 | 14.41 | --- | 12.00 | 12.36 | 13.93 | 14.45 | 14.35 | 13.70 | 13.32 | 13.55 | 14.08 | 14.45 |
| 22 | 14.27 | --- | 12.07 | 12.44 | 13.95 | 14.49 | 13.99 | 13.75 | 13.32 | 13.54 | 14.11 | 14.46 |
| 23 | 14.28 | --- | 12.16 | 12.38 | 13.97 | 14.49 | 14.08 | 13.83 | 13.35 | 12.99 | 14.13 | 14.51 |
| 24 | 14.26 | 11.01 | 12.08 | 12.53 | 13.99 | 14.49 | --- | 13.55 | 13.38 | 12.76 | 14.16 | 14.52 |
| 25 | 14.01 | 11.06 | 12.15 | 12.60 | 14.01 | 14.18 | --- | 13.53 | 13.46 | 12.49 | 14.20 | 14.59 |
| 26 | 11.90 | 11.19 | 11.85 | 12.66 | 14.05 | 14.33 | --- | 13.42 | 13.52 | 12.35 | 14.23 | 14.61 |
| 27 | 11.86 | 11.23 | 11.62 | 12.74 | 14.08 | 14.37 | --- | 12.90 | 13.56 | 12.13 | 14.26 | 14.62 |
| 28 | 11.61 | 10.77 | 11.40 | 12.83 | 14.10 | 14.40 | --- | 12.63 | 13.60 | 12.28 | 14.29 | 14.62 |
| 29 | 11.37 | 10.92 | 11.14 | 12.90 | --- | 14.43 | --- | 12.63 | 13.62 | 12.37 | 14.30 | 14.58 |
| 30 | 11.31 | 10.71 | 10.79 | 12.96 | --- | 14.45 | --- | 12.70 | 13.65 | 12.52 | 14.21 | 14.61 |
| 31 | 11.35 | --- | 10.75 | 13.03 | --- | 14.48 | --- | 12.77 | --- | 12.63 | 14.27 | --- |
| MEAN | 13.94 | 11.42 | 11.69 | 11.90 | 13.66 | 14.32 | 14.46 | 13.30 | 13.52 | 12.97 | 13.76 | 14.38 |

WTR YR 1993 MEAN 13.30 HIGHEST 10.70 NOV. 30, DEC. 1, 1992 LOWEST 14.77 OCT. 20, 1992



GROUND-WATER LEVELS

475

RIO HONDO TO RIO PUERTO NUEVO BASINS

182417066042700. Local number, PN-10.

LOCATION.--Lat 18°24'17", long 66°04'27", Hydrologic Unit 21010005, 3.96 mi southeast of Cataño plaza, 1.00 mi southwest of Escuela J.J. Osuna, and 2.26 mi east of WAPA TV radio antenna. Owner: U.S. Geological Survey, WRD, Name: Las Américas No. 1.

AQUIFER.--Alluvium.

WELL CHARACTERISTICS.--Drilled observation well, cased 4.0 in (0.10 m), 0-80 ft (0-24.39 m), 4.0 in (0.10 m), perforated pipe 80-90 ft (24.39-27.43 m). Depth 90 ft (27.43 m).

INSTRUMENTATION.--Digital water level recorder--15-minute punch.

DATUM.--Elevation of land-surface datum is about 16 ft (4.89 m) above mean sea level, from topographic map.

Measuring point: Hole on well shaft, 3.10 ft (0.95 m) above land-surface datum.

REMARKS.--Recording observation well.

PERIOD OF RECORD.--October 1989 to current year.

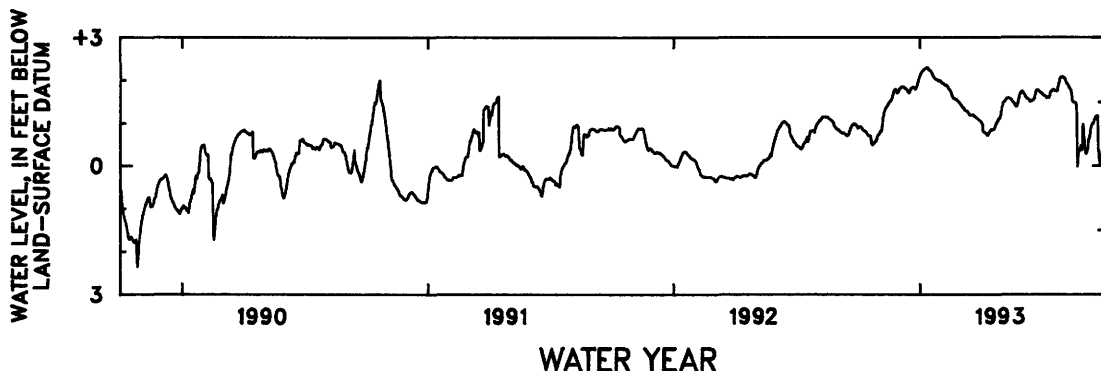
EXTREMES FOR PERIOD OF RECORD.--Highest water level recorded, +2.30 ft (+0.70 m) above land-surface datum, Jan. 9-12, 1993; lowest water level recorded, 2.48 ft (0.76 m) below land-surface datum, Oct. 26-27, 1989.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993
INSTANTANEOUS OBSERVATION AT 1200

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| 1 | +0.90 | +0.76 | +1.81 | +2.15 | +1.96 | +1.46 | +1.04 | +1.30 | +1.75 | +1.68 | +2.06 | +0.57 |
| 2 | +0.92 | +0.79 | +1.83 | +2.18 | +1.93 | +1.44 | +1.01 | +1.39 | +1.74 | +1.66 | +2.06 | +0.37 |
| 3 | +0.92 | +0.82 | +1.84 | +2.20 | +1.93 | +1.41 | +0.97 | +1.44 | +1.70 | +1.65 | +2.04 | +0.30 |
| 4 | +0.93 | +0.81 | +1.85 | +2.22 | +1.92 | +1.38 | +0.80 | +1.49 | +1.68 | +1.64 | +1.99 | +0.28 |
| 5 | +0.91 | +0.92 | +1.85 | +2.24 | +1.90 | +1.36 | +0.80 | +1.50 | +1.65 | +1.63 | +1.96 | +0.33 |
| 6 | +0.89 | +1.07 | +1.85 | +2.25 | +1.89 | +1.36 | +0.79 | +1.51 | +1.62 | +1.62 | +1.92 | +0.41 |
| 7 | +0.85 | +1.17 | +1.84 | +2.26 | +1.88 | +1.34 | +0.77 | +1.54 | +1.60 | +1.59 | +1.91 | +0.57 |
| 8 | +0.84 | +1.24 | +1.82 | +2.28 | +1.89 | +1.31 | +0.76 | +1.57 | +1.58 | +1.60 | +1.88 | +0.63 |
| 9 | +0.83 | +1.30 | +1.82 | +2.29 | +1.87 | +1.30 | +0.75 | +1.58 | +1.57 | +1.61 | +1.84 | +0.69 |
| 10 | +0.82 | +1.35 | +1.81 | +2.30 | +1.86 | +1.29 | +0.72 | +1.59 | +1.57 | +1.60 | +1.82 | +0.78 |
| 11 | +0.81 | +1.37 | +1.79 | +2.29 | +1.82 | +1.28 | +0.71 | +1.59 | +1.55 | +1.60 | +1.80 | +0.89 |
| 12 | +0.80 | +1.39 | +1.77 | +2.30 | +1.80 | +1.27 | +0.76 | +1.59 | +1.52 | +1.67 | +1.77 | +0.95 |
| 13 | +0.77 | +1.42 | +1.74 | +2.24 | +1.78 | +1.25 | +0.78 | +1.58 | +1.50 | +1.73 | +1.71 | +1.00 |
| 14 | +0.74 | +1.45 | +1.72 | +2.24 | +1.76 | +1.23 | +0.80 | +1.57 | +1.51 | +1.75 | +1.54 | +0.99 |
| 15 | +0.72 | +1.48 | +1.71 | +2.23 | +1.73 | +1.20 | +0.83 | +1.56 | +1.52 | +1.76 | +1.50 | +1.03 |
| 16 | +0.71 | +1.50 | +1.76 | +2.21 | +1.68 | +1.19 | +0.85 | +1.54 | +1.52 | +1.78 | +1.49 | +1.09 |
| 17 | +0.70 | +1.52 | +1.79 | +2.19 | +1.63 | +1.19 | +0.84 | +1.51 | +1.54 | +1.79 | +1.49 | +1.12 |
| 18 | +0.70 | +1.54 | +1.82 | +2.16 | +1.60 | +1.19 | +0.85 | +1.50 | +1.55 | +1.78 | +1.48 | +1.16 |
| 19 | +0.70 | +1.56 | +1.83 | +2.11 | +1.58 | +1.19 | +0.86 | +1.48 | +1.57 | +1.76 | +1.47 | +1.16 |
| 20 | +0.53 | +1.61 | +1.84 | +2.08 | +1.58 | +1.20 | +0.86 | +1.46 | +1.63 | +1.76 | +1.45 | +1.17 |
| 21 | +0.50 | +1.67 | +1.84 | +2.06 | +1.57 | +1.18 | +0.89 | +1.43 | +1.71 | +1.75 | +1.20 | +1.17 |
| 22 | +0.49 | +1.73 | +1.83 | +2.03 | +1.56 | +1.16 | +0.93 | +1.41 | +1.77 | +1.75 | +0.03 | +0.34 |
| 23 | +0.52 | +1.77 | +1.82 | +2.03 | +1.55 | +1.16 | +0.98 | +1.39 | +1.78 | +1.77 | +0.29 | +0.25 |
| 24 | +0.53 | +1.79 | +1.80 | +2.02 | +1.55 | +1.14 | +1.01 | +1.40 | +1.78 | +1.84 | +0.39 | +0.04 |
| 25 | +0.56 | +1.80 | +1.81 | +2.01 | +1.52 | --- | +1.04 | +1.45 | +1.77 | +1.92 | +0.38 | +0.03 |
| 26 | +0.57 | +1.74 | +1.85 | +2.01 | +1.51 | --- | +1.06 | +1.51 | +1.75 | +1.98 | +0.36 | +0.17 |
| 27 | +0.59 | +1.71 | +1.89 | +2.00 | +1.49 | --- | +1.10 | +1.58 | +1.73 | +2.05 | +0.47 | +0.29 |
| 28 | +0.64 | +1.72 | +1.95 | +1.98 | +1.48 | --- | +1.12 | +1.66 | +1.72 | +2.07 | +0.37 | +0.42 |
| 29 | +0.69 | +1.73 | +2.02 | +1.99 | --- | --- | +1.13 | +1.70 | +1.70 | +2.07 | +0.44 | +0.47 |
| 30 | +0.72 | +1.78 | +2.07 | +1.99 | --- | --- | +1.18 | +1.73 | +1.70 | +2.08 | +0.99 | +0.49 |
| 31 | +0.74 | --- | +2.11 | +1.96 | --- | --- | --- | +1.74 | --- | +2.08 | +0.85 | --- |
| MEAN | +0.73 | +1.42 | +1.84 | +2.15 | +1.72 | +1.27 | +0.90 | +1.53 | +1.64 | +1.77 | +1.32 | +0.64 |

WTR YR 1993 MEAN +1.41 HIGHEST +2.30 JAN. 9-12, 1993 LOWEST 0.23 AUG. 22, 1993

+ Above land-surface datum



GROUND-WATER LEVELS

RIO HONDO TO RIO PUERTO NUEVO BASINS

182349066032600. Local number, PN-13.

LOCATION.--Lat 18°23'49", long 66°03'26", Hydrologic Unit 21010005, 5.15 mi southeast of Cataño plaza, 1.28 mi south of Escuela J.J. Osuna, and 0.69 mi southwest of University of Puerto Rico main gate. Owner: U.S. Geological Survey, WRD, Name: Jardín Botánico No. 1.

AQUIFER.--Alluvium.

WELL CHARACTERISTICS.--Drilled water-table well, diameter 4 in (0.10 m) cased 4.0 in (0.10 m), 0-45 ft (0-13.72 m), perforated 35-45 ft (10.67-13.72 m). Depth 45 ft (13.72 m).

INSTRUMENTATION.--Digital water level recorder--15-minute punch.

DATUM.--Elevation of land-surface datum is about 32 ft (9.75 m) above mean sea level, from topographic map.

Measuring point: Hole on well shaft, 2.84 ft (0.86 m) above land-surface datum.

REMARKS.--Recording observation well.

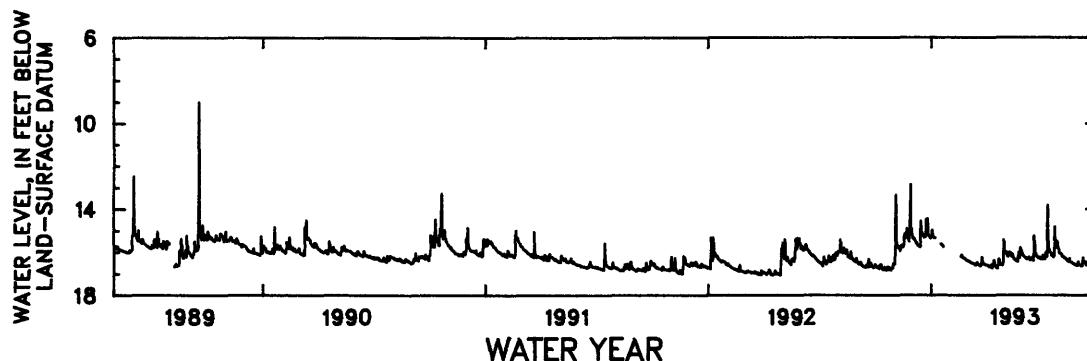
PERIOD OF RECORD.--March 1989 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level recorded, 8.75 ft (2.67 m) below land-surface datum, Sept. 18, 1989; lowest water level recorded, 17.08 ft (5.20 m) below land-surface datum, Apr. 16, 1992.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993
INSTANTANEOUS OBSERVATION AT 1200

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| 1 | 16.55 | 16.56 | 15.18 | 15.26 | --- | 16.40 | 16.59 | 15.92 | 16.17 | 16.32 | 16.05 | 16.59 |
| 2 | 16.64 | 16.53 | 15.32 | 15.28 | --- | 16.40 | 16.60 | 16.04 | 16.19 | 16.32 | 16.07 | 16.61 |
| 3 | 16.69 | 16.10 | 15.37 | 14.95 | --- | 16.41 | 16.61 | 16.05 | 16.21 | 16.12 | 16.12 | 16.63 |
| 4 | 16.70 | 13.30 | 15.36 | 15.27 | --- | 16.43 | 16.63 | 16.00 | 16.24 | 16.25 | 16.19 | 16.63 |
| 5 | 16.67 | 15.50 | 15.39 | 15.30 | --- | 16.44 | 16.63 | 16.12 | 16.26 | 16.29 | 16.19 | 16.65 |
| 6 | 16.73 | 15.69 | 15.50 | 15.31 | --- | 16.47 | 16.67 | 16.18 | 16.30 | 16.31 | 16.21 | 16.61 |
| 7 | 16.74 | 15.75 | 15.55 | 15.34 | --- | 16.49 | 16.69 | 16.18 | 16.31 | 16.31 | 16.24 | 16.24 |
| 8 | 16.77 | 15.79 | 15.57 | 15.33 | --- | 16.50 | 16.65 | 16.00 | 16.32 | 16.00 | 16.27 | 16.41 |
| 9 | 16.56 | 15.73 | 15.65 | --- | --- | 16.51 | 16.59 | 16.00 | 16.27 | 16.12 | 16.28 | 16.45 |
| 10 | 16.65 | 15.83 | 15.68 | --- | --- | 16.52 | 16.66 | 16.02 | 16.21 | 16.19 | 16.30 | 16.46 |
| 11 | 16.57 | 15.92 | 15.71 | --- | --- | 16.53 | 16.73 | 16.04 | 16.31 | 13.78 | 16.33 | 16.44 |
| 12 | 16.72 | 15.84 | 15.72 | --- | --- | 16.55 | 16.54 | 16.15 | 16.36 | 15.56 | 16.37 | 16.58 |
| 13 | 16.79 | 15.68 | 15.75 | --- | --- | 16.55 | 16.61 | 16.20 | 16.37 | 15.85 | 16.41 | 16.47 |
| 14 | 16.81 | 15.71 | 15.74 | --- | --- | 16.58 | 16.36 | 16.08 | 16.30 | 15.91 | 16.42 | 16.57 |
| 15 | 16.75 | 15.75 | 14.52 | --- | --- | 16.60 | 16.57 | 16.20 | 16.30 | 16.00 | 16.43 | 16.60 |
| 16 | 16.81 | 15.74 | 15.01 | --- | --- | 16.57 | 16.64 | 16.28 | 16.25 | 16.02 | 16.28 | 16.60 |
| 17 | 16.70 | 15.67 | 15.07 | 15.62 | --- | 16.47 | 16.68 | 16.31 | 16.34 | 16.07 | 16.43 | 16.63 |
| 18 | 16.82 | 15.26 | 15.15 | 15.66 | --- | 16.54 | 16.68 | 16.33 | 16.39 | 16.15 | 16.46 | 16.54 |
| 19 | 16.78 | 15.13 | 15.18 | 15.66 | 16.20 | 16.57 | 16.73 | 16.36 | 15.21 | 16.13 | 16.47 | 16.56 |
| 20 | 16.83 | 15.35 | 15.27 | 15.70 | 16.11 | 16.59 | 16.76 | 16.38 | 15.70 | 16.19 | 16.49 | 16.63 |
| 21 | 16.81 | 15.28 | 15.30 | 15.75 | 16.22 | 16.61 | 16.59 | 16.41 | 16.05 | 16.22 | 16.51 | 16.69 |
| 22 | 16.66 | 14.88 | 15.28 | --- | 16.25 | 16.63 | 16.30 | 16.38 | 16.10 | 16.15 | 16.53 | 16.64 |
| 23 | 16.82 | 15.26 | 15.27 | --- | 16.27 | 16.63 | 16.54 | 16.43 | 16.18 | 14.79 | 16.53 | 16.71 |
| 24 | 16.74 | 15.28 | 14.44 | --- | 16.27 | 16.58 | 16.57 | 16.01 | 16.19 | 15.43 | 16.56 | 16.65 |
| 25 | 16.73 | 15.36 | 15.06 | --- | 16.28 | 16.20 | 16.58 | 16.14 | 16.24 | 15.71 | 16.59 | 16.74 |
| 26 | 16.83 | 15.50 | 14.41 | --- | 16.33 | 16.42 | 16.56 | 16.25 | 16.26 | 15.80 | 16.59 | 16.72 |
| 27 | 16.82 | 14.84 | 15.10 | --- | 16.34 | 16.51 | 16.58 | 15.77 | 16.27 | 15.47 | 16.60 | 16.73 |
| 28 | 16.72 | 12.82 | 15.23 | --- | 16.37 | 16.54 | 16.60 | 15.89 | 16.29 | 15.84 | 16.61 | 16.74 |
| 29 | 16.74 | 15.15 | 15.26 | --- | --- | 16.56 | 16.43 | 15.96 | 16.24 | 15.85 | 16.62 | 16.69 |
| 30 | 16.75 | 14.85 | 15.27 | --- | --- | 16.57 | 15.40 | 16.05 | 16.26 | 16.01 | 16.44 | 16.78 |
| 31 | 16.50 | --- | 15.35 | --- | --- | 16.58 | --- | 16.14 | --- | 16.04 | 16.56 | --- |
| MEAN | 16.72 | 15.40 | 15.28 | 15.42 | 16.26 | 16.51 | 16.56 | 16.14 | 16.20 | 15.91 | 16.39 | 16.60 |

WTR YR 1993 MEAN 16.14 HIGHEST 11.78 DEC. 15, 1992 LOWEST 16.83 OCT. 20, 1992



GROUND-WATER LEVELS

477

RIO HONDO TO RIO PUERTO NUEVO BASINS

182406066034700. Local number, PN-19.

LOCATION.--Lat 18°24'06", long 66°03'47", Hydrologic Unit 21010005, 4.65 mi southeast of Cataño plaza, 0.89 mi south of Escuela J.J. Osuna, and 0.78 mi southwest of University of Puerto Rico main gate. Owner: U.S. Geological Survey, WRD, Name: Jardín Botánico No. 3.

AQUIFER.--Alluvium.

WELL CHARACTERISTICS.--Drilled water-table well, diameter 4 in (0.10 m) cased 4.0 in (0.10 m), 0-48 ft (0-14.6 m), perforated 38-48 ft (11.6-14.6 m). Depth 48 ft (14.6 m).

INSTRUMENTATION.--Digital water level recorder--15-minute punch.

DATUM.--Elevation of land-surface datum is about 32 ft (9.75 m) above mean sea level, from topographic map.

Measuring point: Hole on well shaft, 2.91 ft (0.88 m) above land-surface datum.

REMARKS.--Recording observation well.

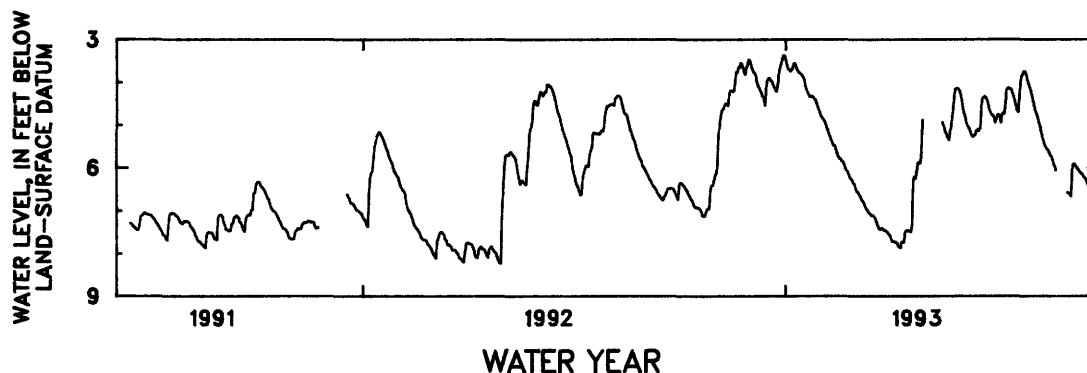
PERIOD OF RECORD.--June 1991 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level recorded, 3.35 ft (1.02 m) below land-surface datum, Dec. 30, 1992; lowest water level recorded, 8.23 ft (2.51 m) below land-surface datum, Apr. 28, 1992.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993
INSTANTANEOUS OBSERVATION AT 1200

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|------|------|------|------|------|------|------|------|------|------|------|------|------|
| 1 | 6.39 | 6.18 | 3.49 | 3.48 | 4.79 | 6.35 | 7.56 | --- | 4.20 | 4.83 | 4.13 | --- |
| 2 | 6.35 | 6.13 | 3.58 | 3.60 | 4.83 | 6.39 | 7.59 | --- | 4.28 | 4.94 | 4.21 | --- |
| 3 | 6.36 | 5.98 | 3.68 | 3.69 | 4.87 | 6.49 | 7.68 | --- | 4.42 | 4.85 | 4.32 | 6.58 |
| 4 | 6.40 | 5.27 | 3.76 | 3.70 | 4.92 | 6.55 | 7.72 | --- | 4.61 | 4.76 | 4.45 | 6.60 |
| 5 | 6.42 | 4.95 | 3.79 | 3.74 | 5.00 | 6.57 | 7.72 | --- | 4.72 | 4.75 | 4.57 | 6.62 |
| 6 | 6.47 | 4.73 | 3.84 | 3.71 | 5.08 | 6.62 | 7.73 | --- | 4.81 | 4.81 | 4.68 | 6.66 |
| 7 | 6.51 | 4.64 | 4.00 | 3.67 | 5.12 | 6.67 | 7.74 | --- | 4.96 | 4.94 | 4.75 | 6.03 |
| 8 | 6.55 | 4.60 | 4.08 | 3.55 | 5.21 | 6.73 | 7.76 | --- | 5.02 | 4.74 | 4.84 | 5.91 |
| 9 | 6.63 | 4.53 | 4.14 | 3.57 | 5.27 | 6.77 | 7.83 | --- | 5.07 | 4.72 | 4.96 | 5.91 |
| 10 | 6.67 | 4.49 | 4.20 | 3.65 | 5.35 | 6.81 | 7.85 | --- | 5.10 | 4.73 | 5.05 | 5.95 |
| 11 | 6.73 | 4.50 | 4.26 | 3.72 | 5.42 | 6.88 | 7.87 | --- | 5.16 | 4.49 | 5.14 | 6.00 |
| 12 | 6.76 | 4.54 | 4.33 | 3.76 | 5.48 | 6.95 | 7.73 | --- | 5.24 | 4.16 | 5.25 | 6.04 |
| 13 | 6.84 | 4.24 | 4.41 | 3.78 | 5.49 | 6.98 | 7.73 | --- | 5.28 | 4.13 | 5.35 | 6.08 |
| 14 | 6.90 | 4.19 | 4.54 | 3.81 | 5.58 | 7.03 | 7.73 | --- | 5.25 | 4.14 | 5.45 | 6.11 |
| 15 | 6.92 | 4.19 | 4.11 | 3.83 | 5.67 | 7.06 | 7.48 | --- | 5.23 | 4.15 | 5.52 | 6.14 |
| 16 | 6.93 | 4.21 | 3.94 | 3.88 | 5.74 | 7.08 | 7.47 | --- | 5.13 | 4.17 | 5.56 | 6.16 |
| 17 | 6.93 | 4.19 | 3.91 | 3.94 | 5.78 | 7.11 | 7.46 | 4.94 | 5.10 | 4.25 | 5.59 | 6.22 |
| 18 | 6.94 | 3.95 | 3.90 | 4.10 | 5.79 | 7.11 | 7.47 | 5.01 | 5.15 | 4.33 | 5.65 | 6.24 |
| 19 | 6.97 | 3.75 | 3.96 | 4.17 | 5.84 | 7.13 | 7.48 | 5.09 | 5.08 | 4.44 | 5.71 | 6.27 |
| 20 | 7.01 | 3.76 | 3.98 | 4.23 | 5.86 | 7.19 | 7.49 | 5.16 | 4.53 | 4.54 | 5.75 | 6.35 |
| 21 | 7.12 | 3.64 | 4.06 | 4.29 | 5.92 | 7.26 | 7.33 | 5.23 | 4.36 | 4.67 | 5.82 | 6.42 |
| 22 | 7.13 | 3.64 | 4.12 | 4.34 | 6.01 | 7.34 | 6.28 | 5.30 | 4.35 | 4.70 | 5.92 | 6.48 |
| 23 | 7.13 | 3.55 | 4.19 | 4.33 | 6.06 | 7.41 | 6.20 | 5.35 | 4.33 | 4.33 | 5.98 | 6.54 |
| 24 | 7.04 | 3.57 | 4.21 | 4.32 | 6.08 | 7.43 | 6.25 | 5.15 | 4.35 | 4.01 | 6.06 | 6.55 |
| 25 | 6.97 | 3.68 | 4.07 | 4.34 | 6.16 | 7.42 | 6.08 | 4.92 | 4.42 | 3.84 | --- | 6.61 |
| 26 | 6.95 | 3.77 | 3.79 | 4.38 | 6.22 | 7.41 | 5.87 | 4.70 | 4.53 | 3.81 | --- | 6.66 |
| 27 | 6.95 | 3.82 | 3.65 | 4.42 | 6.26 | 7.43 | 5.87 | 4.39 | 4.65 | 3.74 | --- | 6.73 |
| 28 | 6.51 | 3.66 | 3.56 | 4.49 | 6.28 | 7.46 | 5.89 | 4.15 | 4.72 | 3.75 | --- | 6.75 |
| 29 | 6.41 | 3.60 | 3.46 | 4.58 | --- | 7.47 | 5.72 | 4.14 | 4.77 | 3.82 | --- | 6.76 |
| 30 | 6.41 | 3.47 | 3.37 | 4.65 | --- | 7.49 | 4.88 | 4.14 | 4.77 | 3.96 | --- | 6.83 |
| 31 | 6.29 | --- | 3.38 | 4.71 | --- | 7.52 | --- | 4.15 | --- | 4.04 | --- | --- |
| MEAN | 6.73 | 4.31 | 3.93 | 4.01 | 5.57 | 7.04 | 7.12 | 4.79 | 4.79 | 4.37 | 5.20 | 6.36 |

WTR YR 1993 MEAN 5.37 HIGHEST 3.35 DEC. 30, 1992 LOWEST 7.87 APR. 11, 1993



GROUND-WATER LEVELS

RIO GRANDE DE LOIZA BASIN

181550065593200. Local number, 50.

LOCATION.--Lat 18°15'50", long 65°59'32", Hydrologic Unit 21010005, 1.36 mi northwest of Gurabo plaza, 0.70 mi north of Estación Experimental Agrícola, and 2.42 mi southwest of Escuela José M. Gallardo. Owner: Gurabo Agricultural Experimental Station, Name: Gurabo.

AQUIFER.--Unconsolidated deposits of Quaternary Age.

WELL CHARACTERISTICS.--Drilled unused water-table well, diameter 13 in (0.34 m), cased 4 in (0.10 m), 0-145 ft (0-44.2 m). Depth 145 ft (44.2 m).

INSTRUMENTATION.--Digital water level recorder--60-minute punch.

DATUM.--Elevation of land-surface datum is about 148 ft (45.1 m) above mean sea level, from topographic map.

Measuring point: Top of 12 in (0.30 m) casing, 0.80 ft (0.24 m) above land-surface datum.

REMARKS.--Observation well. Automatic digital recorder installed on September 18, 1991.

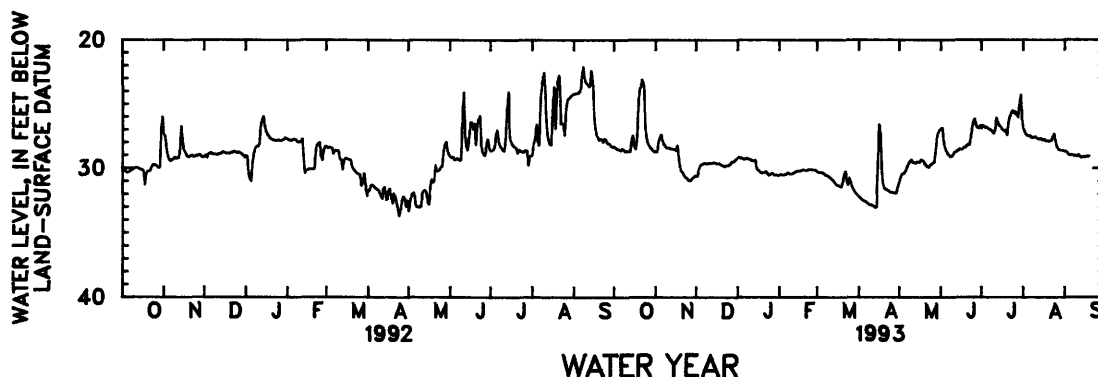
PERIOD OF RECORD.--December 1960 to March 1985, September 1991 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 12.6 ft (3.86 m) below land-surface datum, Sept. 9, 1975; lowest water level measured, 44.4 ft (13.5 m) below land-surface datum, June 18, 1975.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993
INSTANTANEOUS OBSERVATION AT 1200

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| 1 | 28.30 | 28.71 | 30.57 | 29.17 | 30.54 | 30.25 | 32.24 | 31.11 | 26.90 | 26.88 | 26.94 | 28.69 |
| 2 | 28.40 | 28.73 | 30.58 | 29.12 | 30.48 | 30.32 | 32.34 | 30.71 | 26.86 | 26.65 | 27.16 | 28.73 |
| 3 | 28.49 | 27.86 | 30.01 | 29.19 | 30.51 | 30.35 | 32.43 | 30.44 | 27.97 | 26.77 | 27.38 | 28.88 |
| 4 | 28.52 | 27.60 | 29.75 | 29.15 | 30.52 | 30.32 | 32.50 | 30.43 | 28.45 | 26.85 | 27.45 | 28.96 |
| 5 | 28.57 | 27.38 | 29.69 | 29.27 | 30.50 | 30.35 | 32.56 | 30.31 | 28.69 | 26.82 | 27.48 | 28.98 |
| 6 | 28.61 | 27.85 | 29.64 | 29.28 | 30.45 | 30.41 | 32.59 | 30.16 | 28.88 | 26.95 | 27.47 | 28.94 |
| 7 | 28.48 | 28.15 | 29.58 | 29.22 | 30.33 | 30.54 | 32.69 | 29.85 | 29.03 | 26.98 | 27.61 | 28.97 |
| 8 | 28.56 | 28.31 | 29.63 | 29.23 | 30.41 | 30.55 | 32.79 | 29.62 | 29.10 | 27.05 | 27.61 | 29.04 |
| 9 | 28.68 | 28.40 | 29.61 | 29.27 | 30.46 | 30.60 | 32.85 | 29.44 | 29.06 | 27.19 | 27.59 | 29.01 |
| 10 | 28.67 | 28.42 | 29.60 | 29.29 | 30.47 | 30.68 | 32.85 | 29.35 | 28.90 | 27.30 | 27.57 | 29.05 |
| 11 | 28.69 | 28.42 | 29.58 | 29.39 | 30.39 | 30.78 | 32.92 | 29.53 | 28.73 | 27.03 | 27.67 | 28.95 |
| 12 | 28.69 | 28.48 | 29.59 | 29.40 | 30.33 | 30.88 | 32.97 | 29.57 | 28.72 | 26.06 | 27.70 | 29.08 |
| 13 | 28.72 | 28.49 | 29.58 | 29.39 | 30.26 | 30.97 | 33.05 | 29.60 | 28.64 | 26.42 | 27.74 | 29.15 |
| 14 | 27.75 | 28.52 | 29.53 | 29.38 | 30.25 | 31.11 | 32.98 | 29.52 | 28.56 | 26.70 | 27.68 | 29.12 |
| 15 | 27.43 | 28.54 | 29.58 | 30.02 | 30.18 | 31.25 | 29.66 | 29.50 | 28.49 | 26.74 | 27.79 | 29.12 |
| 16 | 28.29 | 28.60 | 29.60 | 30.14 | 30.22 | 31.32 | 26.56 | 29.52 | 28.54 | 26.92 | 27.80 | 29.09 |
| 17 | 28.52 | 28.22 | 29.62 | 30.22 | 30.18 | 31.34 | 27.40 | 29.35 | 28.49 | 27.04 | 27.76 | 29.06 |
| 18 | 27.62 | 29.16 | 29.60 | 30.32 | 30.13 | 31.40 | 30.38 | 29.38 | 28.36 | 27.11 | 27.88 | 29.07 |
| 19 | 24.66 | 29.93 | 29.68 | 30.36 | 30.11 | 31.45 | 31.23 | 29.43 | 28.38 | 27.04 | 27.89 | 29.05 |
| 20 | 23.71 | 30.23 | 29.73 | 30.32 | 30.16 | 31.05 | 31.59 | 29.65 | 28.25 | 27.42 | 27.88 | --- |
| 21 | 23.65 | 30.31 | 29.82 | 30.30 | 30.16 | 30.50 | 31.62 | 29.79 | 28.12 | 26.29 | 27.88 | --- |
| 22 | 23.04 | 30.57 | 29.85 | 30.25 | 30.13 | 30.23 | 31.66 | 29.87 | 28.17 | 25.96 | 27.84 | --- |
| 23 | 23.38 | 30.70 | 29.78 | 30.39 | 30.09 | 30.92 | 31.74 | 29.90 | 27.62 | 25.66 | 27.57 | --- |
| 24 | 26.78 | 30.75 | 29.77 | 30.55 | 30.08 | 31.29 | 31.82 | 29.75 | 26.82 | 25.49 | 27.34 | --- |
| 25 | 27.60 | 30.91 | 29.76 | 30.49 | 30.11 | 30.74 | 31.87 | 29.65 | 26.26 | 25.68 | 27.85 | --- |
| 26 | 28.05 | 30.96 | 29.69 | 30.40 | 30.11 | 31.11 | 31.88 | 29.57 | 26.14 | 25.60 | 28.35 | --- |
| 27 | 28.26 | 30.95 | 29.56 | 30.41 | 30.12 | 31.45 | 31.91 | 29.53 | 26.69 | 25.82 | 28.53 | --- |
| 28 | 28.41 | 30.78 | 29.47 | 30.53 | 30.16 | 31.67 | 31.91 | 28.70 | 26.87 | 26.01 | 28.55 | --- |
| 29 | 28.51 | 30.69 | 29.46 | 30.54 | --- | 31.83 | 31.93 | 27.55 | 26.88 | 25.05 | 28.59 | --- |
| 30 | 28.62 | 30.59 | 29.35 | 30.53 | --- | 31.98 | 31.48 | 27.21 | 26.67 | 24.24 | 28.61 | 27.96 |
| 31 | 28.72 | --- | 29.26 | 30.56 | --- | 32.13 | --- | 26.99 | --- | 26.17 | 28.63 | --- |
| MEAN | 27.56 | 29.24 | 29.69 | 29.87 | 30.28 | 30.96 | 31.75 | 29.52 | 27.97 | 26.45 | 27.80 | 28.94 |

WTR YR 1993 MEAN 29.16 HIGHEST 22.74--OCT. 23, 1992 LOWEST 33.08 APR. 13, 1993



GROUND-WATER LEVELS
RIO GRANDE DE LOIZA BASIN

182515065594100. Local number, 222.

LOCATION.--Lat 18°25'15", long 65°59'41", Hydrologic Unit 21010005, 3.56 mi northwest of Carolina plaza, 1.21 mi northwest of Escuela Extensión El Comandante, and 0.74 mi southwest of Escuela Vistamar. Owner: U.S. Geological Survey, WRD, Name: Campo Rico TW-1.

AQUIFER.--Surficial Deposits.

WELL CHARACTERISTICS.--Drilled unused water-table well, diameter 4 in (0.10 m). Depth 100 ft (30.5 m).

INSTRUMENTATION.--Digital water level recorder--60-minute punch.

DATUM.--Elevation of land-surface datum is about 10.0 ft (3.05 m) above mean sea level, from topographic map.

Measuring point: Hole on side of casing, 0.80 ft (0.24 m) above land-surface datum. Prior July 28, 1986, top of shelter floor, 3.10 ft (0.94 m) above land-surface datum.

REMARKS.--Recording observation well.

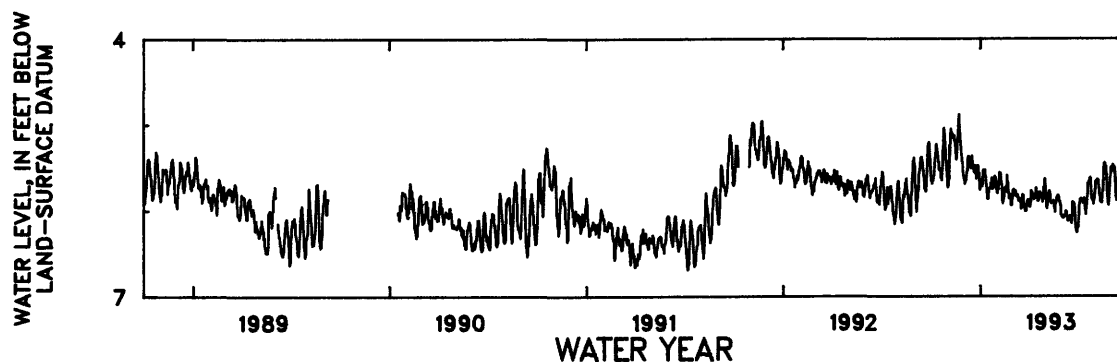
PERIOD OF RECORD.--February 1986 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level recorded, 4.42 ft (1.35 m) below land-surface datum, Aug. 31, 1986; lowest water level recorded, 7.42 ft (2.26 m) below land-surface datum, Feb. 9, 1986.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993
INSTANTANEOUS OBSERVATION AT 1200

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|------|------|------|------|------|------|------|------|------|------|------|------|------|
| 1 | 5.64 | 5.74 | 5.63 | 5.71 | 5.80 | 5.86 | 5.90 | 5.73 | 6.08 | 6.19 | 5.75 | 5.55 |
| 2 | 5.67 | 5.68 | 5.66 | 5.70 | 5.73 | 5.77 | 5.96 | 5.83 | 6.07 | 6.02 | 5.66 | 5.49 |
| 3 | 5.69 | 5.63 | 5.69 | 5.64 | 5.75 | 5.76 | 5.94 | 5.90 | 6.09 | 5.93 | 5.67 | 5.47 |
| 4 | 5.64 | 5.24 | 5.63 | 5.72 | 5.66 | 5.83 | 5.89 | 5.98 | 6.06 | 5.89 | 5.67 | 5.49 |
| 5 | 5.65 | 5.37 | 5.65 | 5.60 | 5.56 | 5.81 | 5.77 | 5.92 | 6.07 | 5.87 | 5.64 | 5.49 |
| 6 | 5.60 | 5.17 | 5.56 | 5.53 | 5.57 | 5.77 | 5.79 | 5.89 | 6.07 | 5.87 | 5.65 | 5.51 |
| 7 | 5.56 | 5.05 | 5.54 | 5.56 | 5.57 | 5.79 | 5.82 | 5.80 | 6.06 | 5.87 | 5.66 | 5.56 |
| 8 | 5.39 | 5.15 | 5.42 | 5.55 | 5.68 | 5.84 | 5.81 | 5.78 | 6.01 | 5.88 | 5.76 | 5.74 |
| 9 | 5.39 | 5.14 | 5.37 | 5.53 | 5.69 | 5.84 | 5.86 | 5.78 | 6.02 | 5.90 | 5.81 | 5.86 |
| 10 | 5.24 | 5.11 | 5.40 | 5.60 | 5.84 | 5.82 | 5.87 | 5.82 | 6.07 | 5.92 | 5.83 | 5.89 |
| 11 | 5.23 | 5.14 | 5.41 | 5.66 | 5.93 | 5.83 | 5.86 | 5.90 | 6.12 | 5.89 | 5.89 | 5.83 |
| 12 | 5.34 | 5.16 | 5.44 | 5.74 | 5.86 | 5.89 | 5.84 | 5.92 | 6.12 | 5.86 | 5.91 | 5.71 |
| 13 | 5.32 | 5.13 | 5.50 | 5.79 | 5.88 | 5.89 | 5.80 | 5.91 | 6.08 | 5.88 | 5.91 | 5.65 |
| 14 | 5.39 | 5.20 | 5.51 | 5.87 | 5.78 | 5.87 | 5.74 | 5.91 | 6.08 | 6.01 | 5.86 | 5.46 |
| 15 | 5.44 | 5.19 | 5.38 | 5.87 | 5.74 | 5.90 | 5.80 | 5.90 | 6.07 | 6.05 | 5.78 | 5.29 |
| 16 | 5.54 | 5.36 | 5.37 | 5.78 | 5.74 | 5.87 | 5.84 | 5.89 | 6.08 | 5.94 | 5.71 | 5.15 |
| 17 | 5.51 | 5.41 | 5.44 | 5.75 | 5.79 | 5.99 | 5.89 | 5.92 | 6.10 | 5.88 | 5.49 | 5.09 |
| 18 | 5.55 | 5.33 | 5.47 | 5.75 | 5.73 | 5.91 | 5.89 | 5.97 | 6.15 | 5.79 | 5.46 | 5.13 |
| 19 | 5.63 | 5.23 | 5.49 | 5.73 | 5.59 | 5.85 | 5.86 | 6.02 | 6.06 | 5.68 | 5.45 | 5.27 |
| 20 | 5.63 | 5.13 | 5.56 | 5.68 | 5.67 | 5.82 | 5.79 | 5.90 | 5.90 | 5.68 | 5.49 | 5.44 |
| 21 | 5.65 | 4.99 | 5.56 | 5.70 | 5.69 | 5.83 | 5.79 | 5.90 | 6.02 | 5.66 | 5.49 | 5.58 |
| 22 | 5.50 | 4.88 | 5.48 | 5.62 | 5.81 | 5.93 | 5.81 | 5.85 | 5.91 | 5.64 | 5.58 | 5.71 |
| 23 | 5.35 | 5.03 | 5.58 | 5.76 | 5.87 | 5.96 | 5.82 | 5.87 | 5.93 | 5.62 | 5.75 | 5.68 |
| 24 | 5.15 | 5.15 | 5.63 | 5.67 | 5.83 | 5.99 | 5.85 | 5.83 | 5.97 | 5.68 | 5.83 | 5.66 |
| 25 | 5.04 | 5.20 | 5.55 | 5.72 | 5.85 | 6.01 | 5.84 | 5.83 | 6.11 | 5.83 | 5.91 | 5.60 |
| 26 | 5.16 | 5.29 | 5.48 | 5.73 | 5.82 | 6.01 | 5.90 | 5.89 | 6.22 | 5.87 | 5.94 | 5.49 |
| 27 | 5.21 | 5.39 | 5.48 | 5.60 | 5.95 | 5.96 | 5.84 | 5.89 | 6.24 | 5.88 | 5.87 | 5.50 |
| 28 | 5.32 | 5.44 | 5.56 | 5.62 | 5.93 | 5.94 | 5.73 | 5.91 | 6.26 | 5.89 | 5.70 | 5.39 |
| 29 | 5.44 | 5.56 | 5.57 | 5.64 | --- | 5.89 | 5.75 | 5.95 | 6.24 | 5.93 | 5.63 | 5.22 |
| 30 | 5.54 | 5.60 | 5.66 | 5.70 | --- | 5.88 | 5.63 | 6.05 | 6.20 | 5.87 | 5.56 | 5.21 |
| 31 | 5.63 | --- | 5.77 | 5.77 | --- | 5.88 | --- | 6.06 | --- | 5.82 | 5.50 | --- |
| MEAN | 5.45 | 5.27 | 5.53 | 5.69 | 5.76 | 5.88 | 5.83 | 5.89 | 6.08 | 5.86 | 5.70 | 5.50 |

WTR YR 1993 MEAN 5.70 HIGHEST 4.83 NOV. 22, 1992 LOWEST 6.32 JUNE 18, 1993



GROUND-WATER LEVELS

RIO GRANDE DE LOIZA BASIN

181513065554601. Local number, CJ-TW3B.

LOCATION.--Lat 18°15'13", long 65°55'46", Hydrologic Unit 21010005, 2.86 mi east of Gurabo plaza, 3.57 mi southwest of Hwy 186 km 4.7, and 1.39 mi southwest of Hwy 185 km 15.7. Owner: U.S. Geological Survey, WRD, Name: CJ-TW3B.

AQUIFER.--Unconsolidated deposits of Quaternary Age.

WELL CHARACTERISTICS.--Drilled unused water-table well, diameter 4 in (0.10 m), cased 4 in (0.10 m), 0-38 ft (0-11.6 m) screened 25-35 ft (7.62 m). Depth 38 ft (11.6 m).

INSTRUMENTATION.--Digital water level recorder--60-minute punch.

DATUM.--Elevation of land-surface datum is about 187 ft (57.0 m) above mean sea level, from topographic map.

Measuring point: Top of casing 2.95 ft (0.90 m) above land-surface datum.

REMARKS.--Observation well. Automatic digital recorder installed on September 17, 1991.

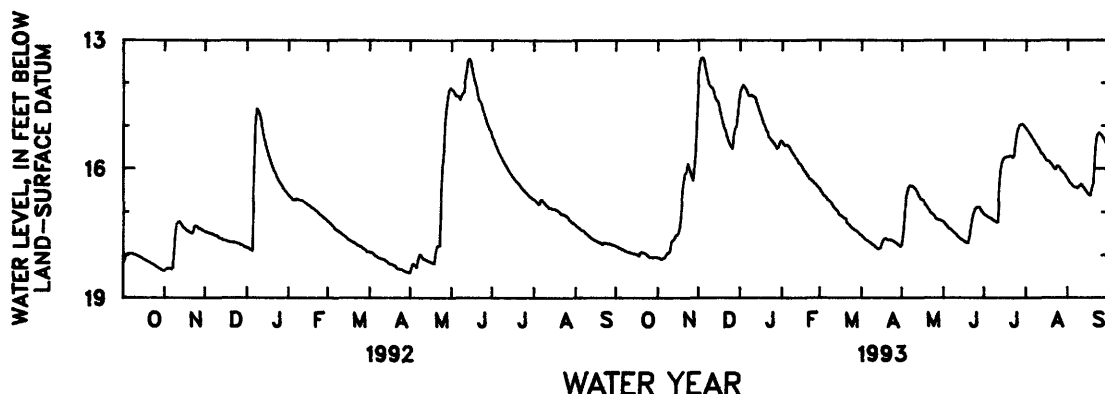
PERIOD OF RECORD.--September 1991 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level recorded, 13.4 ft (4.09 m) below land-surface datum, June 13-14, Dec. 3-4, 1992; lowest water level recorded, 18.4 ft (5.61 m) below land-surface datum, May 1-2, 1992.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993
INSTANTANEOUS OBSERVATION AT 1200

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| 1 | 17.79 | 18.06 | 13.75 | 14.18 | 15.37 | 16.47 | 17.55 | 17.75 | 17.24 | 17.06 | 15.06 | 16.24 |
| 2 | 17.81 | 18.06 | 13.50 | 14.10 | 15.43 | 16.53 | 17.59 | 17.45 | 17.28 | 17.08 | 15.11 | 16.29 |
| 3 | 17.83 | 18.09 | 13.42 | 14.05 | 15.46 | 16.57 | 17.62 | 16.99 | 17.31 | 17.10 | 15.16 | 16.34 |
| 4 | 17.84 | 18.10 | 13.41 | 14.10 | 15.45 | 16.62 | 17.65 | 16.68 | 17.35 | 17.12 | 15.20 | 16.36 |
| 5 | 17.86 | 18.07 | 13.48 | 14.15 | 15.45 | 16.64 | 17.67 | 16.53 | 17.39 | 17.14 | 15.25 | 16.41 |
| 6 | 17.87 | 18.06 | 13.66 | 14.22 | 15.49 | 16.68 | 17.69 | 16.43 | 17.40 | 17.15 | 15.30 | 16.43 |
| 7 | 17.89 | 18.00 | 13.79 | 14.30 | 15.54 | 16.72 | 17.71 | 16.39 | 17.43 | 17.18 | 15.35 | 16.43 |
| 8 | 17.90 | 17.95 | 13.95 | 14.30 | 15.60 | 16.75 | 17.73 | 16.39 | 17.46 | 17.20 | 15.41 | 16.45 |
| 9 | 17.92 | 17.95 | 14.07 | 14.29 | 15.65 | 16.77 | 17.75 | 16.41 | 17.49 | 17.22 | 15.45 | 16.43 |
| 10 | 17.93 | 17.90 | 14.10 | 14.31 | 15.70 | 16.83 | 17.77 | 16.44 | 17.52 | 17.24 | 15.50 | 16.38 |
| 11 | 17.93 | 17.69 | 14.13 | 14.33 | 15.75 | 16.89 | 17.81 | 16.47 | 17.56 | 17.23 | 15.55 | 16.36 |
| 12 | 17.95 | 17.66 | 14.22 | 14.36 | 15.79 | 16.93 | 17.83 | 16.52 | 17.59 | 16.37 | 15.63 | 16.41 |
| 13 | 17.95 | 17.63 | 14.34 | 14.47 | 15.86 | 16.96 | 17.86 | 16.58 | 17.62 | 16.01 | 15.66 | 16.44 |
| 14 | 17.97 | 17.54 | 14.41 | 14.55 | 15.89 | 16.99 | 17.85 | 16.65 | 17.64 | 15.85 | 15.70 | 16.49 |
| 15 | 17.97 | 17.54 | 14.44 | 14.66 | 15.92 | 17.06 | 17.83 | 16.70 | 17.66 | 15.78 | 15.75 | 16.53 |
| 16 | 17.98 | 17.49 | 14.53 | 14.75 | 15.98 | 17.08 | 17.72 | 16.71 | 17.68 | 15.74 | 15.81 | 16.58 |
| 17 | 18.00 | 17.37 | 14.69 | 14.85 | 16.04 | 17.10 | 17.65 | 16.74 | 17.70 | 15.73 | 15.82 | 16.61 |
| 18 | 18.02 | 17.09 | 14.83 | 14.95 | 16.07 | 17.12 | 17.62 | 16.83 | 17.72 | 15.72 | 15.83 | 16.62 |
| 19 | 17.94 | 16.58 | 14.96 | 15.01 | 16.12 | 17.15 | 17.61 | 16.87 | 17.72 | 15.72 | 15.87 | 16.46 |
| 20 | 17.93 | 16.27 | 15.06 | 15.11 | 16.17 | 17.16 | 17.64 | 16.91 | 17.56 | 15.70 | 15.90 | 16.36 |
| 21 | 17.94 | 16.11 | 15.12 | 15.15 | 16.23 | 17.26 | 17.65 | 16.95 | 17.32 | 15.71 | 15.95 | 15.70 |
| 22 | 17.95 | 16.08 | 15.26 | 15.27 | 16.25 | 17.28 | 17.64 | 17.01 | 17.13 | 15.74 | 16.00 | 15.33 |
| 23 | 17.97 | 15.88 | 15.35 | 15.31 | 16.28 | 17.32 | 17.65 | 17.04 | 17.01 | 15.69 | 16.02 | 15.20 |
| 24 | 18.00 | 16.01 | 15.42 | 15.34 | 16.30 | 17.35 | 17.67 | 17.06 | 16.93 | 15.41 | 15.94 | 15.17 |
| 25 | 18.03 | 16.08 | 15.49 | 15.38 | 16.34 | 17.38 | 17.69 | 17.09 | 16.90 | 15.16 | 15.94 | 15.18 |
| 26 | 18.05 | 16.19 | 15.53 | 15.43 | 16.36 | 17.40 | 17.71 | 17.16 | 16.89 | 15.05 | 15.97 | 15.22 |
| 27 | 18.05 | 16.28 | 15.20 | 15.47 | 16.41 | 17.42 | 17.73 | 17.17 | 16.89 | 14.98 | 16.04 | 15.27 |
| 28 | 18.06 | 15.91 | 15.06 | 15.53 | 16.44 | 17.44 | 17.75 | 17.18 | 16.94 | 14.97 | 16.07 | 15.32 |
| 29 | 18.05 | 15.43 | 15.01 | 15.50 | --- | 17.47 | 17.78 | 17.19 | 16.99 | 14.96 | 16.10 | 15.39 |
| 30 | 18.05 | 14.51 | 14.73 | 15.41 | --- | 17.50 | 17.80 | 17.20 | 17.03 | 14.98 | 16.14 | 15.46 |
| 31 | 18.05 | --- | 14.40 | 15.35 | --- | 17.53 | --- | 17.21 | --- | 15.03 | 16.20 | --- |
| MEAN | 17.95 | 17.05 | 14.49 | 14.78 | 15.90 | 17.04 | 17.71 | 16.86 | 17.34 | 16.10 | 15.70 | 16.06 |

WTR YR 1993 MEAN 16.41 HIGHEST 13.4 DEC. 3-4, 1992 LOWEST 18.10 NOV. 4, 1992



GROUND-WATER LEVELS

481

RIO GRANDE DE LOIZA BASIN

181352066025300. Local number, CJ-TW19A.

LOCATION.--Lat 18°13'52", long 66°02'53", Hydrologic Unit 21010005, 0.96 mi southwest of Caguas plaza, 1.02 mi northwest of Escuela Antonio S. Pedreira, and 0.30 mi southeast of Hwy 156 km 59.1. Owner: U.S. Geological Survey, WRD, Name: CJ-TW19A, Boneville.

AQUIFER.--Unconsolidated deposits of Quaternary Age.

WELL CHARACTERISTICS.--Drilled unused water-table well, diameter 4 in (0.10 m), cased 4 in (0.10 m), 0-67 ft (0-20.4 m), screened 50-65 ft (15.2-19.8 m). Depth 67 ft (20.4 m).

INSTRUMENTATION.--Digital water level recorder--60-minute punch.

DATUM.--Elevation of land-surface datum is about 262 ft (79.8 m) above mean sea level, from topographic map.

Measuring point: Top of casing 3.00 ft (0.91 m) above land-surface datum.

REMARKS.--Observation well drilled on September 1, 1989. Automatic digital recorder installed on September 18,

1991. Aquifer test conducted on Aug. 13, 1990.

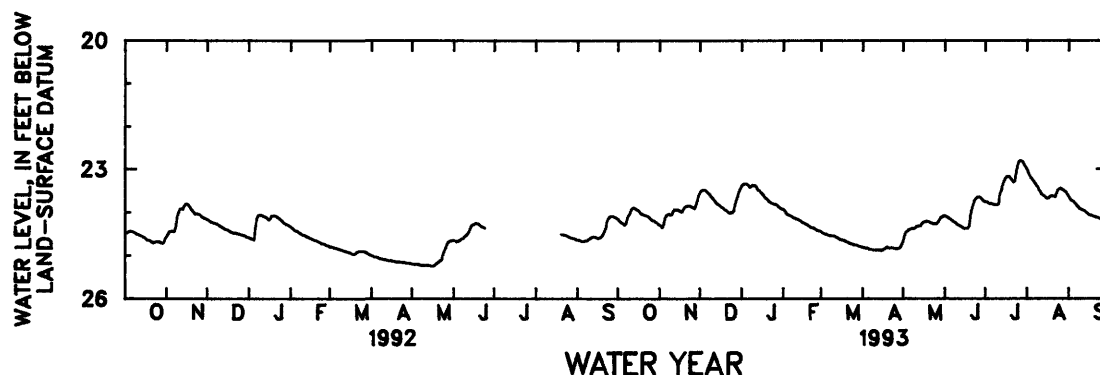
PERIOD OF RECORD.-- June 1992 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level recorded, 22.78 ft (6.94 m) below land-surface datum, July 27, 1993; lowest water level recorded, 25.25 ft (7.70 m) below land-surface datum, May 15-17, 1992.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993
INSTANTANEOUS OBSERVATION AT 1200

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| 1 | 24.16 | 24.30 | 23.54 | 23.38 | 23.94 | 24.45 | 24.81 | 24.67 | 24.08 | 23.76 | 23.01 | 23.64 |
| 2 | 24.20 | 24.32 | 23.50 | 23.35 | 23.97 | 24.48 | 24.82 | 24.54 | 24.10 | 23.76 | 23.09 | 23.70 |
| 3 | 24.23 | 24.36 | 23.48 | 23.34 | 24.02 | 24.49 | 24.83 | 24.46 | 24.11 | 23.78 | 23.16 | 23.73 |
| 4 | 24.25 | 24.28 | 23.48 | 23.34 | 24.05 | 24.51 | 24.83 | 24.44 | 24.14 | 23.80 | 23.21 | 23.74 |
| 5 | 24.27 | 24.13 | 23.49 | 23.35 | 24.07 | 24.51 | 24.84 | 24.41 | 24.16 | 23.80 | 23.25 | 23.77 |
| 6 | 24.30 | 24.07 | 23.52 | 23.38 | 24.08 | 24.53 | 24.86 | 24.39 | 24.19 | 23.80 | 23.29 | 23.80 |
| 7 | 24.26 | 24.05 | 23.55 | 23.42 | 24.09 | 24.54 | 24.86 | 24.38 | 24.21 | 23.82 | 23.34 | 23.85 |
| 8 | 24.13 | 24.04 | 23.58 | 23.40 | 24.12 | 24.55 | 24.87 | 24.38 | 24.23 | 23.83 | 23.38 | 23.88 |
| 9 | 24.07 | 24.06 | 23.63 | 23.37 | 24.13 | 24.55 | 24.88 | 24.38 | 24.25 | 23.83 | 23.42 | 23.92 |
| 10 | 24.03 | 24.05 | 23.66 | 23.38 | 24.15 | 24.55 | 24.88 | 24.36 | 24.28 | 23.83 | 23.49 | 23.93 |
| 11 | 23.94 | 23.97 | 23.70 | 23.38 | 24.16 | 24.56 | 24.88 | 24.33 | 24.30 | 23.81 | 23.53 | 23.95 |
| 12 | 23.90 | 23.94 | 23.74 | 23.42 | 24.17 | 24.58 | 24.88 | 24.32 | 24.32 | 23.57 | 23.59 | 23.96 |
| 13 | 23.90 | 23.94 | 23.78 | 23.48 | 24.19 | 24.59 | 24.88 | 24.31 | 24.34 | 23.50 | 23.61 | 23.98 |
| 14 | 23.92 | 23.93 | 23.81 | 23.50 | 24.21 | 24.61 | 24.88 | 24.31 | 24.36 | 23.35 | 23.63 | 24.01 |
| 15 | 23.94 | 23.95 | 23.83 | 23.54 | 24.24 | 24.63 | 24.89 | 24.26 | 24.38 | 23.27 | 23.66 | 24.03 |
| 16 | 23.96 | 23.97 | 23.86 | 23.56 | 24.25 | 24.64 | 24.87 | 24.23 | 24.38 | 23.21 | 23.69 | 24.06 |
| 17 | 23.98 | 23.99 | 23.88 | 23.60 | 24.27 | 24.65 | 24.85 | 24.22 | 24.38 | 23.18 | 23.67 | 24.07 |
| 18 | 24.03 | 23.98 | 23.90 | 23.65 | 24.28 | 24.66 | 24.83 | 24.21 | 24.37 | 23.18 | 23.64 | 24.08 |
| 19 | 24.05 | 23.90 | 23.93 | 23.68 | 24.30 | 24.67 | 24.81 | 24.21 | 24.32 | 23.18 | 23.62 | 24.09 |
| 20 | 24.06 | 23.87 | 23.95 | 23.71 | 24.32 | 24.69 | 24.82 | 24.22 | 24.06 | 23.23 | 23.62 | 24.10 |
| 21 | 24.07 | 23.86 | 23.97 | 23.75 | 24.35 | 24.70 | 24.83 | 24.24 | 23.92 | 23.26 | 23.63 | 24.12 |
| 22 | 24.08 | 23.85 | 24.00 | 23.77 | 24.36 | 24.72 | 24.82 | 24.25 | 23.82 | 23.31 | 23.65 | 24.12 |
| 23 | 24.09 | 23.85 | 24.02 | 23.79 | 24.37 | 24.73 | 24.82 | 24.27 | 23.72 | 23.28 | 23.55 | 24.13 |
| 24 | 24.11 | 23.86 | 24.01 | 23.80 | 24.38 | 24.74 | 24.84 | 24.27 | 23.68 | 23.08 | 23.48 | 24.15 |
| 25 | 24.15 | 23.88 | 24.01 | 23.81 | 24.40 | 24.75 | 24.84 | 24.27 | 23.65 | 22.90 | 23.46 | 24.17 |
| 26 | 24.18 | 23.90 | 23.97 | 23.82 | 24.42 | 24.76 | 24.85 | 24.26 | 23.64 | 22.82 | 23.44 | 24.18 |
| 27 | 24.20 | 23.91 | 23.83 | 23.83 | 24.43 | 24.76 | 24.84 | 24.22 | 23.65 | 22.80 | 23.47 | 24.19 |
| 28 | 24.20 | 23.84 | 23.72 | 23.87 | 24.44 | 24.77 | 24.84 | 24.17 | 23.69 | 22.81 | 23.49 | 24.20 |
| 29 | 24.23 | 23.73 | 23.63 | 23.89 | --- | 24.79 | 24.80 | 24.12 | 23.72 | 22.84 | 23.51 | 24.21 |
| 30 | 24.25 | 23.62 | 23.52 | 23.91 | --- | 24.79 | 24.74 | 24.10 | 23.75 | 22.90 | 23.54 | 24.24 |
| 31 | 24.28 | --- | 23.46 | 23.93 | --- | 24.81 | --- | 24.08 | --- | 22.96 | 23.59 | --- |
| MEAN | 24.11 | 23.98 | 23.74 | 23.59 | 24.22 | 24.64 | 24.84 | 24.30 | 24.07 | 23.37 | 23.47 | 24.00 |

WTR YR 1993 MEAN 24.02 HIGHEST 22.78 JULY 27, 1993 LOWEST 24.89 APR. 11, 15, 1993



GROUND-WATER LEVELS
RIO HUMACAO TO RIO SECO BASINS

175858066100200. Local number, 6.
LOCATION.--Lat 17°58'58", long 66°10'02", Hydrologic Unit 21010004, 4.23 mi northeast of Central Aguirre Church, 4.08 mi northeast of Colegio del Perpetuo Socorro Church, and 1.77 mi northwest of Hwy 3 km 144.2. Owner: Doctor Bruno, Name: Juana 5.

AQUIFER.--Alluvium of Quaternary Age.
WELL CHARACTERISTICS.--Drilled unused water-table well, diameter 16 in (0.41 m). Depth 173 ft (52.74 m) reported, 110 ft (33.54 m) measured.

INSTRUMENTATION.--Digital water level recorder--60-minute punch.

DATUM.--Elevation of land-surface datum is about 127 ft (38.7 m) above mean sea level, from topographic map.

Measuring point: Top of shelter floor, 3.00 ft (0.91 m) above land-surface datum. After Aug. 7, 1981, top of 16 in (0.41 m) casing, 1.55 ft (0.47 m) above land-surface datum.

REMARKS.--Recording observation well.

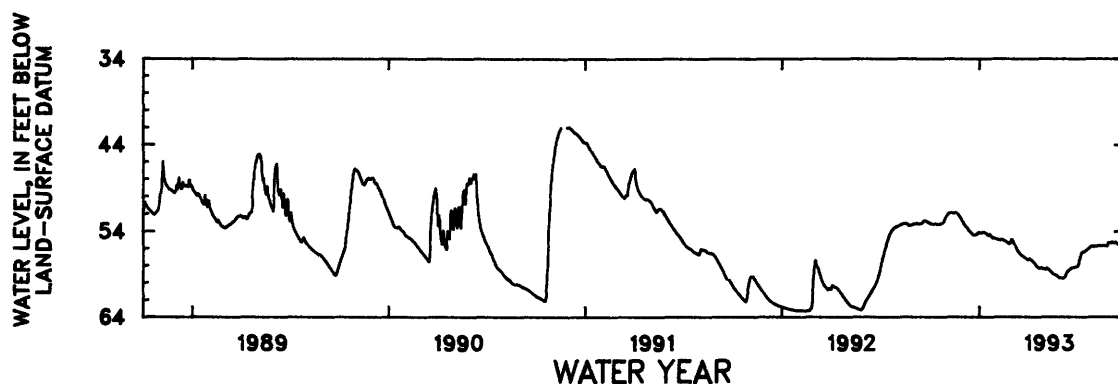
PERIOD OF RECORD.--November 1960 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level recorded, 26.20 ft (7.99 m) below land-surface datum, Dec. 10, 1979; lowest water level recorded, 65.95 ft (20.10 m) below land-surface datum, June 2, 1968.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993
INSTANTANEOUS OBSERVATION AT 1200

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| 1 | 53.02 | 52.22 | 52.85 | 54.11 | 54.87 | 55.18 | 57.32 | 58.39 | 59.44 | 58.14 | 55.73 | 55.32 |
| 2 | 53.07 | 52.10 | 52.96 | 54.12 | 54.89 | 54.94 | 57.30 | 58.35 | 59.45 | 58.12 | 55.74 | 55.36 |
| 3 | 53.11 | 52.03 | 53.07 | 54.14 | 54.91 | 54.93 | 57.23 | 58.39 | 59.46 | 58.02 | 55.75 | 55.34 |
| 4 | 53.13 | 51.96 | 53.16 | 54.17 | 54.94 | 55.04 | 57.20 | 58.46 | 59.46 | 57.81 | 55.74 | 55.26 |
| 5 | 53.14 | 51.90 | 53.26 | 54.17 | 54.95 | 55.18 | 57.24 | 58.45 | 59.45 | 57.51 | 55.73 | 55.22 |
| 6 | 53.14 | 51.86 | 53.34 | 54.15 | 54.96 | 55.33 | 57.30 | 58.33 | 59.44 | 57.23 | 55.72 | 55.24 |
| 7 | 53.14 | 51.85 | 53.43 | 54.13 | 54.96 | 55.48 | 57.35 | 58.31 | 59.42 | 56.97 | 55.71 | 55.28 |
| 8 | 53.14 | 51.83 | 53.50 | 54.11 | 54.99 | 55.61 | 57.40 | 58.37 | 59.37 | 56.77 | 55.70 | 55.35 |
| 9 | 53.14 | 51.83 | 53.57 | 54.09 | 55.02 | 55.76 | 57.46 | 58.45 | 59.30 | 56.60 | 55.69 | 55.36 |
| 10 | 53.13 | 51.82 | 53.66 | 54.10 | 55.04 | 55.89 | 57.50 | 58.52 | 59.19 | 56.48 | 55.69 | 55.28 |
| 11 | 53.13 | 51.83 | 53.73 | 54.12 | 54.96 | 56.02 | 57.56 | 58.56 | 59.02 | 56.41 | 55.68 | 55.24 |
| 12 | 53.11 | 51.83 | 53.81 | 54.16 | 54.94 | 56.15 | 57.62 | 58.62 | 58.83 | 56.38 | 55.68 | 55.26 |
| 13 | 53.13 | 51.84 | 53.89 | 54.20 | 54.96 | 56.28 | 57.69 | 58.67 | 58.72 | 56.37 | 55.68 | 55.33 |
| 14 | 53.14 | 51.86 | 53.97 | 54.25 | 55.01 | 56.39 | 57.77 | 58.73 | 58.62 | 56.35 | 55.67 | 55.39 |
| 15 | 53.15 | 51.84 | 54.04 | 54.30 | 55.03 | 56.48 | 57.86 | 58.80 | 58.57 | 56.32 | 55.67 | 55.46 |
| 16 | 53.15 | 51.83 | 54.12 | 54.36 | 55.06 | 56.55 | 57.94 | 58.86 | 58.54 | 56.28 | --- | 55.55 |
| 17 | 53.17 | 51.82 | 54.19 | 54.42 | 55.10 | 56.62 | 58.02 | 58.93 | 58.51 | 56.24 | --- | 55.60 |
| 18 | 53.18 | 51.81 | 54.25 | 54.46 | 55.13 | 56.69 | 58.09 | 58.98 | 58.44 | 56.19 | --- | 55.64 |
| 19 | 53.16 | 51.82 | 54.31 | 54.41 | 55.16 | 56.74 | 58.14 | 59.02 | 58.38 | 56.14 | 55.66 | 55.68 |
| 20 | 53.16 | 51.85 | 54.36 | 54.34 | 55.20 | 56.80 | 58.19 | 59.05 | 58.33 | 56.10 | 55.65 | 55.73 |
| 21 | 53.13 | 51.90 | 54.41 | 54.37 | 55.24 | 56.84 | 58.25 | 59.08 | 58.30 | 56.04 | 55.66 | 55.79 |
| 22 | 53.10 | 51.96 | 54.45 | 54.47 | 55.29 | 56.88 | 58.32 | 59.10 | 58.27 | 56.00 | 55.67 | 55.82 |
| 23 | 53.06 | 52.03 | 54.46 | 54.54 | 55.33 | 56.93 | 58.33 | 59.12 | 58.24 | 55.95 | 55.69 | 55.81 |
| 24 | 53.04 | 52.12 | 54.45 | 54.61 | 55.39 | 56.99 | 58.27 | 59.16 | 58.22 | 55.92 | 55.71 | 55.73 |
| 25 | 52.99 | 52.21 | 54.43 | 54.68 | 55.44 | 57.04 | 58.24 | 59.20 | 58.20 | 55.87 | 55.70 | 55.63 |
| 26 | 52.95 | 52.31 | 54.40 | 54.73 | 55.44 | 57.09 | 58.27 | 59.25 | 58.19 | 55.82 | 55.67 | 55.59 |
| 27 | 52.88 | 52.38 | 54.34 | 54.79 | 55.42 | 57.13 | 58.32 | 59.30 | 58.17 | 55.79 | 55.61 | 55.62 |
| 28 | 52.77 | 52.52 | 54.29 | 54.81 | 55.37 | 57.16 | 58.38 | 59.34 | 58.16 | 55.77 | 55.48 | 55.70 |
| 29 | 52.60 | 52.63 | 54.23 | 54.82 | --- | 57.20 | 58.42 | 59.39 | 58.15 | 55.75 | 55.35 | 55.79 |
| 30 | 52.45 | 52.74 | 54.17 | 54.83 | --- | 57.24 | 58.43 | 59.41 | 58.13 | 55.74 | 55.30 | 55.87 |
| 31 | 52.32 | --- | 54.13 | 54.84 | --- | 57.28 | --- | 59.43 | --- | 55.74 | 55.29 | --- |
| MEAN | 53.03 | 52.02 | 53.91 | 54.38 | 55.11 | 56.32 | 57.85 | 58.84 | 58.73 | 56.48 | 55.64 | 55.51 |

WTR YR 1993 MEAN 55.65 HIGHEST 51.80 NOV. 18, 1992 LOWEST 59.46 JUNE 3-5, 1993



GROUND-WATER LEVELS

RIO HUMACAO TO RIO SECO BASINS

180415065513900. Local number, 96.

LOCATION.--Lat 18°04'15", long 65°51'39", Hydrologic Unit 21010005, 2.44 mi northwest of Escuela Eugenio María de Hostos 4.67 mi southwest of Escuela Segunda Unidad Luciano, and 3.93 mi southwest of Escuela Asunción López.

Owner: P.R. Aqueduct and Sewer Authority, Name: USGS TW-2 or Yabucoa 7.

AQUIFER.--Alluvium of Quaternary Age.

WELL CHARACTERISTICS.--Drilled observation water-table well, diameter 16 in (0.41 m), cased 0-10 ft (0-3.05 m), diameter 6 in (0.15 m), cased about 0-183 ft (0-55.79 m), perforated 56-81 ft (17.07-24.70 m), 102-123 ft (31.10-37.50 m), 144-181 ft (43.90-55.18 m). Depth 181 ft (55.18 m).

INSTRUMENTATION.--Digital water level recorder--60-minute punch.

DATUM.--Elevation of land-surface datum is about 25 ft (7.62 m) above mean sea level, from topographic map.

Measuring point: Top of shelter floor, 4.00 ft (1.22 m) above land-surface.

REMARKS.--Recording observation well.

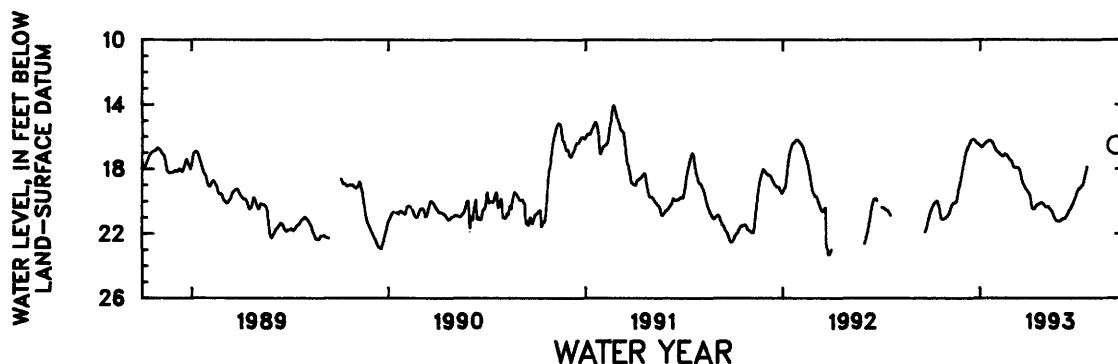
PERIOD OF RECORD.--April 25, 1978 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level recorded, 13.10 ft (3.99 m) below land-surface datum, Dec. 2, 1987; lowest water level recorded, 28.29 ft (8.62 m) below land-surface datum, Sept. 20, 1980.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993
INSTANTANEOUS OBSERVATION AT 1200

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-----|-------|
| 1 | 20.65 | 20.92 | 17.74 | 16.56 | 16.91 | 17.59 | 19.48 | 20.28 | 21.14 | 19.32 | --- | --- |
| 2 | 20.55 | 20.90 | 17.54 | 16.61 | 16.93 | 17.73 | 19.54 | 20.33 | 21.11 | 19.26 | --- | --- |
| 3 | 20.45 | 20.84 | 17.37 | 16.64 | 16.98 | 17.83 | 19.62 | 20.34 | 21.09 | 19.22 | --- | --- |
| 4 | 20.36 | 20.79 | 17.19 | 16.64 | 17.00 | 17.88 | 19.69 | 20.37 | 21.10 | 19.19 | --- | --- |
| 5 | 20.31 | 20.71 | 17.04 | 16.63 | 17.04 | 17.92 | 19.90 | 20.37 | 21.09 | 19.17 | --- | --- |
| 6 | 20.25 | 20.63 | 16.94 | 16.59 | 17.07 | 17.93 | 20.14 | 20.36 | 21.08 | 19.14 | --- | --- |
| 7 | 20.19 | 20.50 | 16.85 | 16.54 | 17.11 | 17.93 | 20.31 | 20.34 | 21.06 | 19.11 | --- | --- |
| 8 | 20.11 | 20.38 | 16.78 | 16.48 | 17.14 | 17.92 | 20.44 | 20.34 | 21.02 | 19.06 | --- | --- |
| 9 | 20.08 | 20.29 | 16.67 | 16.44 | 17.17 | 17.92 | 20.49 | 20.40 | 20.98 | 19.03 | --- | 16.53 |
| 10 | 20.05 | 20.20 | 16.62 | 16.40 | 17.20 | 17.93 | 20.50 | 20.46 | 20.94 | 19.00 | --- | --- |
| 11 | 20.02 | 20.15 | 16.56 | 16.37 | 17.22 | 17.93 | 20.49 | 20.50 | 20.88 | 18.87 | --- | --- |
| 12 | 19.98 | 20.11 | 16.46 | 16.35 | 17.21 | 17.93 | 20.46 | 20.51 | 20.81 | 18.77 | --- | --- |
| 13 | 19.97 | 20.10 | 16.39 | 16.31 | 17.19 | 17.95 | 20.42 | 20.57 | 20.75 | 18.65 | --- | --- |
| 14 | 19.98 | 20.10 | 16.27 | 16.30 | 17.15 | 17.99 | 20.35 | 20.62 | 20.66 | 18.47 | --- | --- |
| 15 | 20.07 | 20.09 | 16.22 | 16.28 | 17.11 | 18.05 | 20.30 | 20.68 | 20.58 | 18.31 | --- | --- |
| 16 | 20.21 | 20.07 | 16.19 | 16.26 | 17.08 | 18.14 | 20.27 | 20.77 | 20.52 | 18.18 | --- | --- |
| 17 | 20.32 | 20.03 | 16.18 | 16.24 | 17.10 | 18.27 | 20.23 | 20.88 | 20.48 | 18.03 | --- | --- |
| 18 | 20.49 | 19.98 | 16.18 | 16.23 | 17.14 | 18.43 | 20.21 | 20.97 | 20.44 | 17.89 | --- | --- |
| 19 | 20.68 | 19.83 | 16.17 | 16.22 | 17.16 | 18.64 | 20.19 | 21.03 | 20.37 | --- | --- | --- |
| 20 | 20.87 | 19.65 | 16.18 | 16.23 | 17.21 | 18.76 | 20.17 | 21.08 | 20.29 | 17.67 | --- | --- |
| 21 | 21.03 | 19.44 | 16.21 | 16.27 | 17.25 | 18.86 | 20.15 | 21.13 | 20.21 | --- | --- | --- |
| 22 | 21.10 | 19.26 | 16.25 | 16.31 | 17.30 | 18.91 | 20.12 | 21.17 | 20.13 | --- | --- | --- |
| 23 | 21.11 | 19.10 | 16.31 | 16.34 | 17.35 | 18.99 | 20.12 | 21.22 | 20.04 | --- | --- | --- |
| 24 | 21.11 | 18.95 | 16.35 | 16.41 | 17.41 | 19.04 | 20.10 | 21.23 | 19.96 | --- | --- | --- |
| 25 | 21.10 | 18.80 | 16.37 | 16.47 | 17.45 | 19.12 | 20.09 | 21.23 | 19.88 | --- | --- | --- |
| 26 | 21.09 | 18.64 | 16.39 | 16.54 | 17.49 | 19.21 | 20.12 | 21.24 | 19.78 | --- | --- | --- |
| 27 | 21.08 | 18.47 | 16.43 | 16.64 | 17.51 | 19.26 | 20.12 | 21.25 | 19.72 | --- | --- | --- |
| 28 | 21.06 | 18.28 | 16.44 | 16.69 | 17.53 | 19.28 | 20.16 | 21.25 | 19.60 | --- | --- | --- |
| 29 | 21.04 | 18.10 | 16.47 | 16.77 | --- | 19.31 | 20.20 | 21.25 | 19.49 | --- | --- | --- |
| 30 | 21.01 | 17.92 | 16.51 | 16.85 | --- | 19.38 | 20.24 | 21.23 | 19.39 | --- | --- | --- |
| 31 | 20.97 | --- | 16.53 | 16.88 | --- | 19.44 | --- | 21.19 | --- | --- | --- | --- |
| MEAN | 20.56 | 19.77 | 16.57 | 16.47 | 17.19 | 18.43 | 20.15 | 20.79 | 20.49 | 18.75 | --- | --- |

WTR YR 1993 MEAN 18.93 HIGHEST 16.17 DEC. 19-20, 1992 LOWEST 21.25 MAY 26-30, 1993.



GROUND-WATER LEVELS

RIO SALINAS TO RIO JACAGUAS BASINS

175829066232200. Local number, 87.

LOCATION.--Lat 17°58'29", long 66°23'22", Hydrologic Unit 21010004, 1.10 mi northeast of Santa Isabel plaza, 3.69 mi southeast of Escuela Playita Cortada, and 1.07 mi southeast of Estación Experimental Santa Isabel. Owner: Francisco Alomar, Name: Alomar 1.

AQUIFER.--Alluvium of Quaternary Age.

WELL CHARACTERISTICS.--Drilled unused water-table well, diameter 20 in (0.51 m), iron cased. Depth 112 ft (34.14 m).

INSTRUMENTATION.--Digital water level recorder--60-minute punch.

DATUM.--Elevation of land-surface datum is 35.32 ft (10.77 m) above mean sea level.

Measuring point: Bottom of clean-out shelter door, 2.50 ft (0.76 m) above land-surface datum. Prior to August 1981, top of recorder shelter floor, 4.00 ft (1.22 m) above land-surface datum.

REMARKS.--Recording observation well.

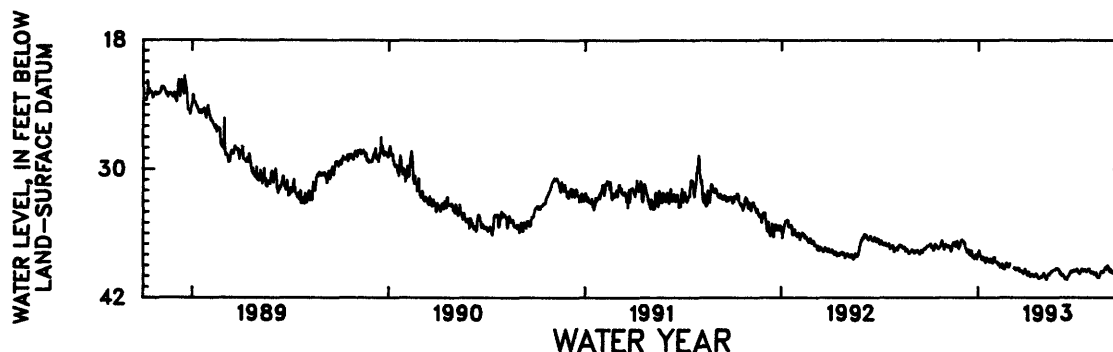
PERIOD OF RECORD.--April 1967 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level recorded, 8.45 ft (2.58 m) below land-surface datum, Dec. 10, 1970; lowest water level recorded, 49.18 ft (14.99 m) below land-surface datum, July 27, 1974.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993
INSTANTANEOUS OBSERVATION AT 1200

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| 1 | 37.16 | 37.07 | 36.64 | 37.86 | 38.23 | 38.87 | 39.69 | 40.00 | 39.59 | 39.43 | 39.58 | 39.37 |
| 2 | 37.09 | 37.03 | 36.61 | 37.78 | 38.57 | --- | 39.87 | 39.83 | 39.73 | 39.53 | 39.65 | 39.53 |
| 3 | 37.11 | 37.19 | 36.70 | 37.62 | 38.71 | --- | 39.92 | 39.72 | 39.66 | 39.42 | 39.62 | 39.30 |
| 4 | 37.02 | 37.17 | 36.74 | 37.80 | 38.71 | --- | 39.67 | 39.82 | 39.88 | 39.36 | 39.65 | 39.37 |
| 5 | 36.97 | 37.16 | 36.81 | 38.15 | 38.68 | --- | 39.61 | 39.98 | 39.94 | 39.37 | 39.82 | 39.64 |
| 6 | 37.08 | 37.28 | 37.00 | 38.20 | 38.83 | --- | 39.85 | 40.10 | 39.91 | 39.53 | 39.74 | 39.64 |
| 7 | 37.34 | 37.14 | 36.88 | 38.15 | 38.91 | --- | 39.87 | 40.25 | 39.85 | 39.62 | 39.69 | 39.51 |
| 8 | 37.19 | 37.20 | 37.20 | 38.47 | 38.81 | --- | 40.05 | 40.31 | 39.91 | 39.67 | 39.67 | 39.68 |
| 9 | 37.31 | 37.23 | 37.44 | 38.48 | 38.97 | 39.25 | 39.88 | 40.16 | 40.02 | 39.79 | 39.72 | 39.70 |
| 10 | 37.62 | 37.38 | 37.49 | 38.29 | 39.06 | 39.29 | 39.83 | 39.96 | 40.18 | 39.72 | 40.02 | 39.49 |
| 11 | 37.51 | 37.54 | 37.74 | 38.23 | 39.21 | 39.43 | 39.87 | 39.83 | 40.25 | 39.57 | 40.09 | 39.59 |
| 12 | 37.26 | 37.69 | 37.75 | 38.54 | 39.05 | 39.35 | 39.82 | 39.76 | 40.27 | 39.43 | 40.16 | 39.69 |
| 13 | 37.02 | 37.46 | 37.67 | 38.39 | 39.21 | 39.28 | 39.92 | 39.89 | 40.30 | 39.35 | 40.13 | 39.79 |
| 14 | 37.00 | 37.15 | 37.54 | 38.72 | 38.95 | 39.32 | 40.05 | 39.81 | 40.23 | 39.37 | 40.13 | 39.96 |
| 15 | 37.11 | 37.00 | 37.55 | 38.63 | 38.89 | 39.28 | 39.90 | 39.71 | 40.31 | 39.37 | 39.97 | 39.79 |
| 16 | 37.15 | 36.87 | 38.02 | 38.56 | 39.30 | 39.39 | 39.96 | 39.63 | 40.10 | 39.55 | 39.79 | 39.83 |
| 17 | 37.24 | 36.87 | 37.73 | 38.26 | 39.33 | 39.49 | 40.00 | 39.56 | 39.97 | 39.48 | 39.67 | 39.62 |
| 18 | 37.39 | 36.84 | 38.08 | 38.30 | 39.14 | 39.28 | 39.77 | 39.53 | 40.03 | 39.37 | 39.58 | 39.80 |
| 19 | 37.40 | 36.96 | 37.81 | 38.43 | 39.36 | 39.56 | 39.79 | 39.50 | 39.90 | 39.42 | 39.55 | --- |
| 20 | 37.43 | 37.23 | 37.61 | 38.61 | 39.16 | 39.53 | 39.86 | 39.50 | 39.75 | 39.46 | 39.61 | --- |
| 21 | 37.31 | 36.94 | 37.88 | 38.58 | 38.95 | 39.52 | 40.06 | 39.44 | 39.64 | 39.45 | 39.60 | 39.82 |
| 22 | 37.27 | 36.89 | 38.23 | 38.71 | 38.81 | 39.51 | 40.10 | 39.41 | 39.56 | 39.62 | 39.64 | 40.03 |
| 23 | 37.16 | 36.75 | 38.19 | 38.55 | 38.81 | 39.58 | 40.19 | 39.39 | 39.62 | 39.56 | 39.47 | 40.04 |
| 24 | 36.97 | 36.95 | 38.30 | 38.40 | 39.09 | 39.67 | 40.22 | 39.40 | 39.58 | 39.42 | 39.37 | 39.76 |
| 25 | 36.85 | 37.31 | 38.39 | 38.40 | 39.08 | 39.66 | 40.12 | 39.31 | 39.60 | 39.34 | 39.25 | 39.56 |
| 26 | 36.70 | 37.44 | 38.17 | 38.74 | 38.95 | 39.76 | 40.18 | 39.27 | 39.51 | 39.35 | 39.18 | 39.39 |
| 27 | 36.97 | 37.23 | 38.13 | 38.77 | 39.20 | 39.64 | 40.10 | 39.29 | 39.47 | 39.35 | 39.35 | 39.38 |
| 28 | 37.06 | 37.19 | 38.01 | 38.77 | 39.06 | 39.52 | 40.11 | 39.26 | 39.48 | 39.53 | 39.17 | 39.35 |
| 29 | 37.28 | 36.89 | 38.15 | 38.50 | --- | 39.36 | 39.97 | 39.34 | 39.48 | 39.60 | 39.06 | 39.49 |
| 30 | 37.51 | 36.76 | 38.41 | 38.35 | --- | 39.54 | 40.04 | 39.41 | 39.56 | 39.71 | 39.04 | 39.45 |
| 31 | 37.25 | --- | 38.09 | 38.23 | --- | 39.66 | --- | 39.48 | --- | 39.72 | 39.16 | --- |
| MEAN | 37.18 | 37.13 | 37.64 | 38.37 | 38.97 | 39.45 | 39.94 | 39.67 | 39.84 | 39.50 | 39.62 | 39.63 |

WTR YR 1993 MEAN 38.89 HIGHEST 36.57 DEC. 2, 1992 LOWEST 40.35 JUNE 12, 13, 1993



GROUND-WATER LEVELS

RIO SALINAS TO RIO JACAGUAS BASINS

180002066132200. Local number, HW-TW-01.

LOCATION.--Lat 18°00'02", long 66°13'22", Hydrologic Unit 21010004, 3.30 mi southwest of Cerro Guaraco, 8.71 mi southwest of Cayey plaza, and 2.80 mi southeast of Hwy 1 km 82.3 on Rabo del Buey. Owner: U.S. Geological Survey, WRD, Name: HW-TW-01.

AQUIFER.--Fractured, volcanic rock, water-table aquifer.

WELL CHARACTERISTICS.--Drilled observation well, diameter 7 in (0.18 m), 0-39.5 ft (0-12.0 m), cased 4 in (0.10 m), 0-38.2 ft (0-11.6 m), screened 32-37 ft (9.75-11.3 m). Depth 39.5 ft (12.0 m).

INSTRUMENTATION.--Digital water level recorder--60-minute punch.

DATUM.--Elevation of land-surface datum is 190 ft (58.0 m) above mean sea level.

Measuring point: Hole on side of 4 in (0.10 m) casing, 2.84 ft (0.87 m) above land-surface datum. Prior October 13, 1988, top of shelter floor, 3.48 ft (1.06 m) above land-surface datum.

REMARKS.--Recording observation well.

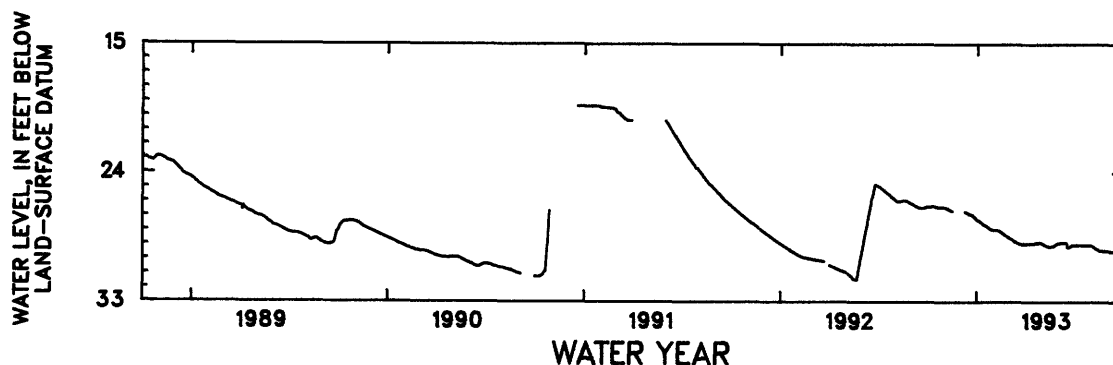
PERIOD OF RECORD.--April 14, 1988 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level recorded, 19.34 ft (5.89 m) below land-surface datum, Dec. 18, 1990 to Jan. 26, 1991; lowest water level recorded, 31.45 ft (9.58 m) below land-surface datum, May 21-22, 1992.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993
INSTANTANEOUS OBSERVATION AT 1200

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| 1 | 26.35 | 26.41 | --- | 27.27 | 27.97 | 28.48 | 28.94 | 28.86 | 28.89 | 29.01 | 29.03 | 29.44 |
| 2 | 26.34 | 26.41 | --- | 27.28 | 27.96 | 28.50 | 28.94 | 28.89 | 28.88 | 29.01 | 29.04 | 29.45 |
| 3 | 26.34 | 26.43 | --- | 27.30 | 27.96 | 28.53 | 28.94 | 28.92 | 28.87 | 29.01 | 29.07 | 29.45 |
| 4 | 26.34 | 26.45 | --- | 27.31 | 27.96 | 28.55 | 28.94 | 28.92 | 28.86 | 29.01 | 29.09 | 29.45 |
| 5 | 26.33 | 26.46 | --- | 27.33 | 27.96 | 28.57 | 28.94 | 28.96 | 28.85 | 29.01 | 29.12 | 29.46 |
| 6 | 26.33 | 26.48 | --- | 27.37 | 27.96 | 28.59 | 28.93 | 29.00 | 28.85 | 29.01 | 29.14 | 29.46 |
| 7 | 26.33 | 26.50 | --- | 27.39 | 27.97 | 28.61 | 28.93 | 29.01 | 28.85 | 29.01 | 29.16 | 29.46 |
| 8 | 26.32 | 26.52 | --- | 27.43 | 27.97 | 28.63 | 28.93 | 29.03 | 28.84 | 29.01 | 29.19 | 29.47 |
| 9 | 26.32 | 26.54 | --- | 27.45 | 27.99 | 28.66 | 28.93 | 29.05 | 28.84 | 29.01 | 29.22 | 29.47 |
| 10 | 26.32 | 26.55 | 26.70 | 27.48 | 28.00 | 28.70 | 28.93 | 29.06 | 28.84 | 29.01 | 29.25 | 29.47 |
| 11 | 26.31 | 26.58 | 26.71 | 27.50 | 28.00 | 28.73 | 28.93 | 29.08 | 28.84 | 29.01 | 29.27 | 29.48 |
| 12 | 26.31 | 26.60 | 26.73 | 27.54 | 28.02 | 28.78 | 28.93 | 29.10 | 28.84 | 29.01 | 29.29 | 29.48 |
| 13 | 26.32 | 26.61 | 26.75 | 27.58 | 28.04 | 28.78 | 28.92 | 29.11 | 28.84 | 29.02 | 29.31 | 29.48 |
| 14 | 26.32 | 26.63 | 26.76 | 27.60 | 28.07 | 28.78 | 28.92 | 29.12 | 28.85 | 29.02 | 29.32 | 29.49 |
| 15 | 26.32 | 26.64 | 26.77 | 27.62 | 28.10 | 28.81 | 28.92 | 29.13 | 28.86 | 29.02 | 29.36 | 29.49 |
| 16 | 26.34 | 26.66 | 26.83 | 27.63 | 28.12 | 28.83 | 28.92 | 29.13 | 28.88 | 29.02 | 29.38 | 29.49 |
| 17 | 26.34 | --- | 26.83 | 27.65 | 28.18 | 28.86 | 28.92 | 29.13 | 28.89 | 29.02 | 29.39 | 29.50 |
| 18 | 26.36 | --- | 26.84 | 27.68 | 28.19 | 28.88 | 28.92 | 29.12 | 29.16 | 29.02 | 29.40 | 29.50 |
| 19 | 26.38 | --- | 26.86 | 27.69 | 28.21 | 28.90 | 28.89 | 29.12 | 29.16 | 29.03 | 29.40 | 29.50 |
| 20 | 26.37 | --- | 26.87 | 27.71 | 28.25 | 28.91 | 28.88 | 29.12 | 29.16 | 29.03 | 29.40 | 29.51 |
| 21 | 26.38 | --- | 26.89 | 27.77 | 28.28 | 28.93 | 28.87 | 29.12 | 29.16 | 29.03 | 29.41 | 29.52 |
| 22 | 26.39 | --- | 26.91 | 27.77 | 28.30 | 28.94 | 28.87 | 29.12 | 29.15 | 29.03 | 29.41 | 29.53 |
| 23 | 26.38 | --- | 26.93 | 27.79 | 28.33 | 28.93 | 28.86 | 29.09 | 29.12 | 29.03 | 29.41 | 29.53 |
| 24 | 26.39 | --- | 26.94 | 27.83 | 28.35 | 28.93 | 28.86 | 29.07 | 29.10 | 29.03 | 29.42 | 29.54 |
| 25 | 26.39 | --- | 26.98 | 27.87 | 28.38 | 28.94 | 28.86 | 29.04 | 29.08 | 29.03 | 29.42 | 29.55 |
| 26 | --- | --- | 27.03 | 27.89 | 28.39 | 28.95 | 28.86 | 29.02 | 29.05 | 29.03 | 29.42 | 29.55 |
| 27 | --- | --- | 27.07 | 27.93 | 28.43 | 28.95 | 28.85 | 28.99 | 29.03 | 29.03 | 29.43 | 29.56 |
| 28 | 26.38 | --- | 27.10 | 27.94 | 28.45 | 28.95 | 28.85 | 28.97 | 29.02 | 29.03 | 29.43 | 29.57 |
| 29 | 26.39 | --- | 27.15 | 27.96 | --- | 28.95 | 28.85 | 28.95 | 29.01 | 29.03 | 29.43 | 29.58 |
| 30 | 26.39 | --- | 27.19 | 27.97 | --- | 28.94 | 28.85 | 28.92 | 29.01 | 29.03 | 29.44 | 29.58 |
| 31 | 26.40 | --- | 27.24 | 27.96 | --- | 28.94 | --- | 28.91 | --- | 29.03 | 29.44 | --- |
| MEAN | 26.35 | 26.53 | 26.91 | 27.63 | 28.14 | 28.79 | 28.90 | 29.03 | 28.96 | 29.02 | 29.31 | 29.50 |

WTR YR 1993 MEAN 28.37 HIGHEST 26.31 OCT. 11-14, 1992 LOWEST 29.59 SEPT. 30, 1993



GROUND-WATER LEVELS

RIO SALINAS TO RIO JACAGUAS BASINS

180001066122002 Local number, HW-TW-03C.

LOCATION.--Lat 18°00'01", long 66°12'20", Hydrologic Unit 21010004, 8.27 mi southwest of Cayey plaza, 2.38 mi southwest of Cerro Garau, and 3.45 mi southeast of Hwy 1 km 82.3. Owner: U.S. Geological Survey, WRD,

Name: HW-TW-03C.

AQUIFER.--Fractured, volcanic rock, water-table aquifer.

WELL CHARACTERISTICS.--Drilled observation well, diameter 7 in (0.18 m), 0-220 ft (0-67.0 m), cased 4 in (0.10 m), 0-150 ft (0-45.7 m), open hole 150-220 ft (45.7-67.0 m). Depth 220 ft (67.0 m).

INSTRUMENTATION.--Digital water level recorder--60-minute punch.

DATUM.--Elevation of land-surface datum is 270 ft (82.6 m) above mean sea level.

Measuring point: Top of shelter floor, 3.32 ft (1.01 m) above land-surface datum.

REMARKS.--Recording observation well. Aquifer test performed during May 24, 25, 26, 1989.

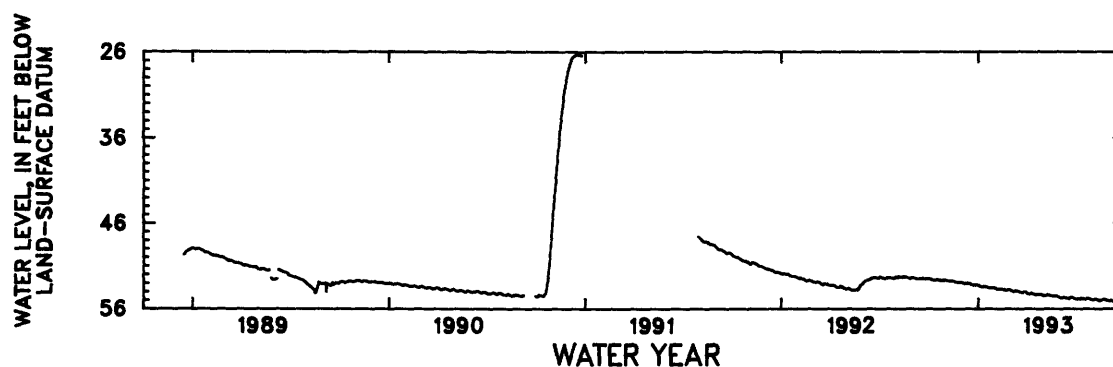
PERIOD OF RECORD.--December 15, 1988 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level recorded, 26.29 ft (8.01 m) below land-surface datum, Dec. 15, 1990; lowest water level recorded, 55.24 ft (16.8 m) below land-surface datum, Sept. 30, 1993.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993
INSTANTANEOUS OBSERVATION AT 1200

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| 1 | 52.46 | 52.67 | 52.90 | 53.23 | 53.56 | 53.76 | 54.11 | 54.38 | 54.65 | 54.84 | 54.92 | 55.06 |
| 2 | 52.49 | 52.68 | 52.92 | 53.26 | 53.58 | 53.77 | 54.16 | 54.43 | 54.68 | 54.85 | 54.91 | 55.06 |
| 3 | 52.52 | 52.72 | 52.94 | 53.28 | 53.62 | 53.84 | 54.21 | 54.47 | 54.69 | 54.84 | 54.93 | 55.04 |
| 4 | 52.53 | 52.74 | 52.96 | 53.32 | 53.67 | 53.88 | 54.22 | 54.47 | 54.69 | 54.83 | 54.93 | 55.00 |
| 5 | 52.51 | 52.74 | 53.00 | 53.35 | 53.70 | 53.88 | 54.24 | 54.48 | 54.70 | 54.83 | 54.88 | 54.99 |
| 6 | 52.52 | 52.75 | 53.01 | 53.38 | 53.68 | 53.91 | 54.25 | 54.47 | 54.70 | 54.81 | 54.86 | 55.01 |
| 7 | 52.60 | 52.77 | 53.03 | 53.40 | 53.69 | 53.95 | 54.24 | 54.41 | 54.68 | 54.80 | 54.85 | 55.06 |
| 8 | 52.62 | 52.79 | 53.04 | 53.40 | 53.70 | 53.97 | 54.20 | 54.39 | 54.66 | 54.79 | 54.86 | 55.09 |
| 9 | 52.63 | 52.79 | 53.04 | 53.40 | 53.67 | 53.95 | 54.17 | 54.37 | 54.67 | 54.83 | 54.87 | 55.11 |
| 10 | 52.64 | 52.79 | 53.04 | 53.38 | 53.69 | 53.93 | 54.16 | 54.33 | 54.69 | 54.83 | 54.90 | 55.14 |
| 11 | 52.63 | 52.79 | 53.02 | 53.36 | 53.66 | 53.90 | 54.18 | 54.35 | 54.70 | 54.77 | 54.93 | 55.16 |
| 12 | 52.61 | 52.77 | 53.01 | 53.36 | 53.65 | 53.85 | 54.21 | 54.37 | 54.74 | 54.73 | 54.98 | 55.18 |
| 13 | 52.61 | 52.76 | 53.01 | 53.39 | 53.66 | 53.86 | 54.22 | 54.39 | 54.75 | 54.77 | 55.01 | 55.21 |
| 14 | 52.62 | 52.75 | 53.02 | 53.40 | 53.67 | 53.89 | 54.23 | 54.39 | 54.76 | 54.80 | 55.03 | 55.23 |
| 15 | 52.60 | 52.77 | 53.02 | 53.43 | 53.69 | 53.92 | 54.28 | 54.43 | 54.75 | 54.80 | 55.04 | 55.20 |
| 16 | 52.57 | 52.78 | 53.05 | 53.43 | 53.71 | 53.94 | 54.31 | 54.47 | 54.74 | 54.83 | 54.95 | 55.18 |
| 17 | 52.59 | 52.81 | 53.06 | 53.45 | 53.74 | 53.96 | 54.32 | 54.47 | 54.81 | 54.85 | 54.95 | 55.15 |
| 18 | 52.57 | 52.83 | 53.08 | 53.50 | 53.75 | 53.98 | 54.34 | 54.46 | 54.83 | 54.89 | 54.96 | 55.09 |
| 19 | 52.60 | 52.87 | 53.14 | 53.51 | 53.76 | 54.01 | 54.33 | 54.47 | 54.76 | 54.90 | 54.93 | 55.08 |
| 20 | 52.64 | 52.90 | 53.14 | 53.51 | 53.79 | 54.02 | 54.30 | 54.50 | 54.68 | 54.85 | 54.89 | 55.12 |
| 21 | 52.68 | 52.90 | 53.17 | 53.54 | 53.84 | 54.04 | 54.31 | 54.51 | 54.65 | 54.81 | 54.89 | 55.12 |
| 22 | 52.70 | 52.91 | 53.21 | 53.54 | 53.85 | 54.05 | 54.33 | 54.49 | 54.63 | 54.76 | 54.87 | 55.15 |
| 23 | 52.60 | 52.89 | 53.24 | 53.55 | 53.80 | 54.07 | 54.33 | 54.50 | 54.60 | 54.74 | 54.85 | 55.16 |
| 24 | 52.63 | 52.91 | 53.21 | 53.55 | 53.79 | 54.07 | 54.30 | 54.47 | 54.63 | 54.78 | 54.90 | 55.14 |
| 25 | 52.66 | 52.92 | 53.23 | 53.53 | 53.78 | 54.05 | 54.29 | 54.43 | 54.66 | 54.79 | 54.93 | 55.17 |
| 26 | 52.67 | 52.92 | 53.21 | 53.52 | 53.78 | 54.03 | 54.25 | 54.42 | 54.69 | 54.76 | 54.95 | 55.21 |
| 27 | 52.68 | 52.88 | 53.21 | 53.50 | 53.77 | 54.02 | 54.26 | 54.47 | 54.69 | 54.82 | 54.97 | 55.22 |
| 28 | 52.60 | 52.85 | 53.21 | 53.52 | 53.78 | 54.01 | 54.29 | 54.52 | 54.73 | 54.86 | 55.01 | 55.22 |
| 29 | 52.58 | 52.89 | 53.18 | 53.53 | --- | 54.02 | 54.30 | 54.55 | 54.79 | 54.90 | 55.02 | 55.21 |
| 30 | 52.61 | 52.90 | 53.18 | 53.55 | --- | 54.04 | 54.33 | 54.58 | 54.82 | 54.92 | 55.04 | 55.21 |
| 31 | 52.67 | --- | 53.20 | 53.56 | --- | 54.07 | --- | 54.62 | --- | 54.94 | 55.04 | --- |
| MEAN | 52.60 | 52.81 | 53.09 | 53.44 | 53.72 | 53.96 | 54.26 | 54.45 | 54.71 | 54.82 | 54.94 | 55.13 |

WTR YR 1993 MEAN 53.99 HIGHEST 52.44 OCT. 1, 1992 LOWEST 55.24 SEPT. 30, 1993



GROUND-WATER LEVELS

487

RIO SALINAS TO RIO JACAGUAS BASINS

175947066130601 Local number, HW-TW-05B.

LOCATION.--Lat 17°59'47", long 66°13'06", Hydrologic Unit 21010004, 2.70 mi northeast of Central Aguirre Church, 6.16 mi northwest of Escuela de Guayama, and 2.70 mi northeast of Hwy 3 km 151.3. Owner: U.S. Geological Survey, WRD, Name: HW-TW-05B.

AQUIFER.--Fractured, volcanic rock, water-table aquifer.

WELL CHARACTERISTICS.--Drilled observation well, diameter 7 in (0.18 m), 0-52 ft (0-15.8 m), cased 4 in (0.10 m), 0-51 ft (0-15.5 m), screened 41-46 ft (12.5-14.0 m). Depth 52 ft (15.8 m).

INSTRUMENTATION.--Digital water level recorder--60-minute punch.

DATUM.--Elevation of land-surface datum is 145 ft (44.2 m) above mean sea level.

Measuring point: Hole on side of casing, 3.00 ft (0.91 m) above land-surface datum. Prior October 13, 1989 top of shelter floor, 3.47 ft (1.06 m) above land-surface datum.

REMARKS.--Recording observation well.

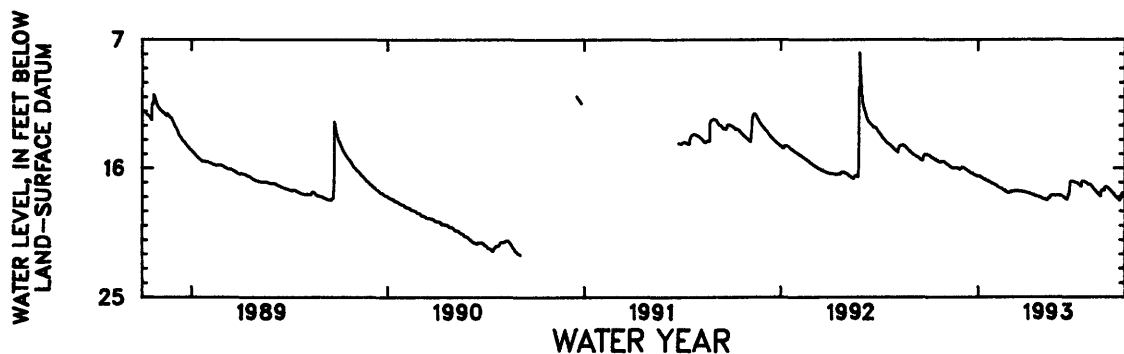
PERIOD OF RECORD.--April 13, 1988 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level recorded, 7.89 ft (2.40 m) below land-surface datum, May 26, 1992; lowest water level recorded, 22.14 ft (6.75 m) below land-surface datum, Sept. 5, 1990.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993
INSTANTANEOUS OBSERVATION AT 1200

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| 1 | 15.07 | 15.65 | 16.00 | 16.58 | 17.15 | 17.68 | 17.71 | 18.13 | 17.92 | 17.01 | 17.33 | 17.48 |
| 2 | 15.08 | 15.67 | 15.94 | 16.57 | 17.18 | 17.67 | 17.72 | 18.15 | 17.94 | 17.02 | 17.38 | 17.52 |
| 3 | 15.13 | 15.71 | 15.93 | 16.57 | 17.19 | 17.66 | 17.74 | 18.17 | 17.95 | 17.04 | 17.44 | 17.56 |
| 4 | 15.16 | 15.75 | 15.94 | 16.58 | 17.22 | 17.66 | 17.75 | 18.17 | 17.95 | 17.05 | 17.49 | 17.59 |
| 5 | 15.19 | 15.75 | 15.97 | 16.60 | 17.24 | 17.63 | 17.76 | 18.18 | 17.95 | 17.08 | 17.53 | 17.63 |
| 6 | 15.22 | 15.78 | 16.01 | 16.62 | 17.27 | 17.62 | 17.77 | 18.20 | 17.97 | 17.11 | 17.56 | 17.67 |
| 7 | 15.25 | 15.81 | 16.04 | 16.64 | 17.30 | 17.62 | 17.78 | 18.23 | 18.00 | 17.14 | 17.60 | 17.72 |
| 8 | 15.26 | 15.85 | 16.07 | 16.67 | 17.33 | 17.62 | 17.80 | 18.25 | 18.02 | 17.17 | 17.66 | 17.77 |
| 9 | 15.28 | 15.88 | 16.09 | 16.70 | 17.35 | 17.61 | 17.81 | 18.26 | 18.05 | 17.21 | 17.71 | 17.81 |
| 10 | 15.32 | 15.90 | 16.12 | 16.73 | 17.37 | 17.60 | 17.82 | 18.18 | 18.08 | 17.25 | 17.75 | 17.86 |
| 11 | 15.35 | 15.92 | 16.14 | 16.75 | 17.38 | 17.60 | 17.84 | 18.12 | 18.09 | 17.27 | 17.79 | 17.90 |
| 12 | 15.37 | 15.94 | 16.17 | 16.77 | 17.41 | 17.59 | 17.86 | 18.10 | 18.13 | 16.99 | 17.83 | 17.95 |
| 13 | 15.37 | 15.97 | 16.20 | 16.79 | 17.42 | 17.59 | 17.87 | 18.10 | 18.16 | 16.92 | 17.89 | 17.99 |
| 14 | 15.41 | 16.00 | 16.23 | 16.79 | 17.45 | 17.59 | 17.89 | 18.09 | 18.17 | 16.92 | 17.92 | 18.04 |
| 15 | 15.44 | 16.00 | 16.24 | 16.81 | 17.48 | 17.59 | 17.90 | 17.97 | 18.17 | 16.91 | 17.95 | 18.08 |
| 16 | 15.46 | 16.01 | 16.27 | 16.83 | 17.50 | 17.61 | 17.92 | 17.93 | 17.98 | 16.91 | 17.96 | 18.12 |
| 17 | 15.50 | 16.00 | 16.29 | 16.85 | 17.53 | 17.61 | 17.94 | 17.91 | 17.85 | 16.94 | 17.64 | 18.14 |
| 18 | 15.52 | 15.99 | 16.32 | 16.86 | 17.54 | 17.61 | 17.95 | 17.90 | 17.83 | 16.97 | 17.55 | 18.16 |
| 19 | 15.56 | 15.98 | 16.35 | 16.89 | 17.57 | 17.62 | 17.96 | 17.90 | 17.68 | 17.00 | 17.53 | 18.19 |
| 20 | 15.58 | 15.98 | 16.36 | 16.91 | 17.60 | 17.62 | 17.97 | 17.90 | 17.08 | 17.02 | 17.53 | 18.25 |
| 21 | 15.59 | 15.98 | 16.37 | 16.93 | 17.62 | 17.62 | 17.98 | 17.91 | 16.94 | 17.04 | 17.54 | 18.18 |
| 22 | 15.60 | 15.98 | 16.40 | 16.95 | 17.65 | 17.64 | 17.99 | 17.91 | 16.93 | 17.07 | 17.57 | 18.10 |
| 23 | 15.55 | 15.99 | 16.41 | 16.98 | 17.68 | 17.65 | 18.01 | 17.91 | 16.92 | 17.11 | 17.56 | 18.10 |
| 24 | 15.54 | 16.02 | 16.44 | 17.00 | 17.70 | 17.65 | 18.03 | 17.92 | 16.92 | 17.14 | 17.37 | 17.87 |
| 25 | 15.52 | 16.04 | 16.47 | 17.02 | 17.72 | 17.65 | 18.04 | 17.92 | 16.91 | 17.14 | 17.31 | 17.77 |
| 26 | 15.52 | 16.06 | 16.50 | 17.05 | 17.73 | 17.66 | 18.06 | 17.91 | 16.93 | 17.13 | 17.30 | 17.75 |
| 27 | 15.53 | 16.08 | 16.51 | 17.08 | 17.73 | 17.66 | 18.07 | 17.90 | 16.93 | 17.13 | 17.30 | 17.74 |
| 28 | 15.52 | 16.09 | 16.53 | 17.09 | 17.71 | 17.67 | 18.09 | 17.90 | 16.95 | 17.16 | 17.33 | 17.77 |
| 29 | 15.55 | 16.04 | 16.55 | 17.09 | --- | 17.68 | 18.10 | 17.90 | 16.97 | 17.20 | 17.37 | 17.79 |
| 30 | 15.58 | 16.02 | 16.57 | 17.10 | --- | 17.69 | 18.12 | 17.89 | 16.99 | 17.24 | 17.39 | 17.80 |
| 31 | 15.63 | --- | 16.57 | 17.12 | --- | 17.70 | --- | 17.89 | --- | 17.29 | 17.44 | --- |
| MEAN | 15.41 | 15.93 | 16.26 | 16.84 | 17.46 | 17.63 | 17.91 | 18.03 | 17.61 | 17.08 | 17.57 | 17.88 |

WTR YR 1993 MEAN 17.13 HIGHEST 15.07 OCT. 1, 1992 LOWEST 18.26 MAY 9, 10, 1993



GROUND-WATER LEVELS

RIO SALINAS TO RIO JACAGUAS BASINS

175957066123400 Local number, HW-TW-13.

LOCATION.--Lat 17°59'57", long 66°12'34", Hydrologic Unit 21010004, 3.11 northeast of Central Aguirre Church, 5.76 mi northwest of Escuela de Guayama, and 2.03 mi northeast of Hwy 3 km 151.3. Owner: U.S. Geological Survey, WRD, Name: HW-TW-13.

AQUIFER.--Fractured, volcanic rock, water-table aquifer.

WELL CHARACTERISTICS.--Drilled observation well, diameter 7 in (0.18 m), 0-69 ft (0-21.0 m), cased 4 in (0.10 m), 0-69 ft (0-21.0 m), screened 4.0-69 ft (1.22-21.0 m). Depth 69 ft (21.0 m).

INSTRUMENTATION.--Digital water level recorder--60-minute punch.

DATUM.--Elevation of land-surface datum is 203 ft (61.9 m) above mean sea level.

Measuring point: Hole on side of casing, 2.33 ft (0.71 m) above land-surface datum. Prior October 14, 1988, top of shelter floor, 3.47 ft (1.06 m) above land-surface datum.

REMARKS.--Recording observation well.

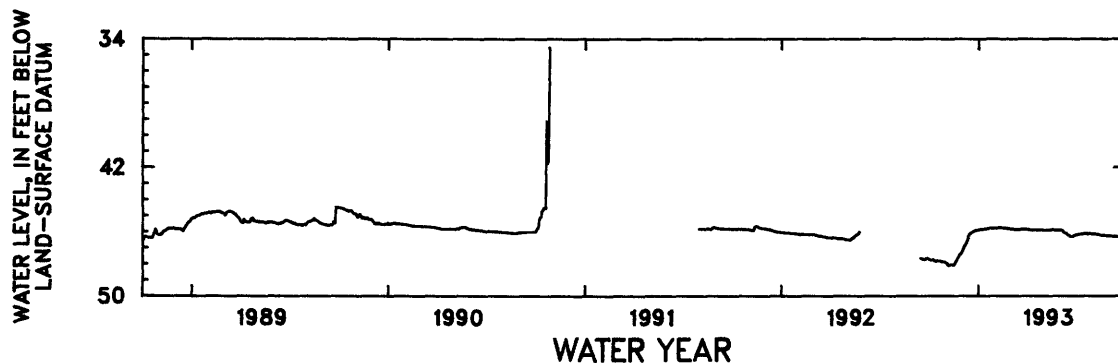
PERIOD OF RECORD.--April 14, 1988 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level recorded, 34.39 ft (10.5 m) below land-surface datum, Oct. 27, 1990; lowest water level recorded, 48.10 ft (14.7 m) below land-surface datum, Nov. 6, 7, 1992.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993
INSTANTANEOUS OBSERVATION AT 1200

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| 1 | 47.72 | 47.91 | 47.24 | 45.88 | 45.77 | 45.82 | 45.85 | 45.90 | 45.90 | 46.20 | 46.14 | 46.26 |
| 2 | 47.74 | 47.95 | 47.16 | 45.88 | 45.76 | 45.82 | 45.86 | 45.90 | 45.90 | 46.19 | 46.14 | 46.26 |
| 3 | 47.74 | 47.96 | 47.09 | 45.87 | 45.76 | 45.82 | 45.87 | 45.90 | 45.90 | 46.17 | 46.14 | 46.26 |
| 4 | 47.76 | 47.96 | 47.00 | 45.86 | 45.76 | 45.83 | 45.87 | 45.90 | 45.91 | 46.17 | 46.15 | 46.26 |
| 5 | 47.78 | 48.06 | 46.93 | 45.86 | 45.76 | 45.83 | 45.88 | 45.90 | 45.91 | 46.16 | 46.15 | 46.26 |
| 6 | 47.77 | 48.09 | 46.87 | 45.86 | 45.75 | 45.85 | 45.89 | 45.90 | 45.94 | 46.15 | 46.15 | 46.26 |
| 7 | 47.76 | 48.10 | 46.82 | 45.85 | 45.75 | 45.85 | 45.89 | 45.90 | 45.99 | 46.15 | 46.15 | 46.27 |
| 8 | 47.76 | 48.08 | 46.75 | 45.85 | 45.75 | 45.85 | 45.90 | 45.90 | 46.03 | 46.14 | 46.15 | 46.28 |
| 9 | 47.75 | 48.08 | 46.68 | 45.84 | 45.75 | 45.86 | 45.90 | 45.90 | 46.05 | 46.14 | 46.16 | 46.29 |
| 10 | 47.75 | 48.05 | 46.60 | 45.83 | 45.74 | 45.86 | 45.90 | 45.90 | 46.08 | 46.14 | 46.17 | 46.29 |
| 11 | 47.79 | 48.04 | 46.54 | 45.83 | 45.74 | 45.87 | 45.90 | 45.90 | 46.09 | 46.13 | 46.18 | 46.29 |
| 12 | 47.84 | 48.04 | 46.44 | 45.82 | 45.75 | 45.86 | 45.90 | 45.89 | 46.10 | 46.13 | 46.18 | 46.30 |
| 13 | 47.84 | 48.05 | 46.34 | 45.82 | 45.75 | 45.86 | 45.90 | 45.89 | 46.10 | 46.13 | 46.19 | 46.30 |
| 14 | 47.84 | 48.06 | 46.23 | 45.81 | 45.76 | 45.86 | 45.90 | 45.89 | 46.14 | 46.13 | 46.20 | 46.30 |
| 15 | 47.83 | 48.06 | 46.15 | 45.81 | 45.76 | 45.86 | 45.90 | 45.89 | 46.18 | 46.13 | 46.21 | 46.31 |
| 16 | 47.82 | 48.06 | 46.13 | 45.80 | 45.76 | 45.85 | 45.89 | 45.89 | 46.21 | 46.13 | 46.22 | 46.31 |
| 17 | 47.81 | 48.04 | 46.11 | 45.79 | 45.77 | 45.85 | 45.89 | 45.89 | 46.22 | 46.13 | 46.23 | 46.31 |
| 18 | 47.82 | 47.98 | 46.08 | 45.79 | 45.77 | 45.85 | 45.89 | 45.89 | 46.23 | 46.13 | 46.23 | 46.31 |
| 19 | 47.82 | 47.91 | 46.05 | 45.79 | 45.78 | 45.85 | 45.89 | 45.89 | 46.25 | 46.13 | 46.23 | 46.31 |
| 20 | 47.82 | 47.85 | 46.03 | 45.78 | 45.78 | 45.85 | 45.89 | 45.89 | 46.29 | 46.13 | 46.23 | 46.32 |
| 21 | 47.82 | 47.79 | 46.02 | 45.77 | 45.78 | 45.85 | 45.89 | 45.90 | 46.31 | 46.13 | 46.23 | 46.32 |
| 22 | 47.82 | 47.72 | 46.00 | 45.77 | 45.79 | 45.85 | 45.89 | 45.90 | 46.31 | 46.13 | 46.23 | 46.32 |
| 23 | 47.84 | 47.66 | 45.98 | 45.77 | 45.79 | 45.85 | 45.89 | 45.90 | 46.32 | 46.14 | 46.24 | 46.32 |
| 24 | 47.87 | 47.59 | 45.96 | 45.77 | 45.80 | 45.84 | 45.89 | 45.90 | 46.32 | 46.14 | 46.24 | 46.33 |
| 25 | 47.87 | 47.53 | 45.94 | 45.77 | 45.80 | 45.84 | 45.89 | 45.90 | 46.31 | 46.14 | 46.24 | 46.33 |
| 26 | 47.87 | 47.47 | 45.92 | 45.77 | 45.80 | 45.84 | 45.89 | 45.90 | 46.29 | 46.14 | 46.24 | 46.34 |
| 27 | 47.87 | 47.42 | 45.91 | 45.77 | 45.81 | 45.84 | 45.89 | 45.90 | 46.26 | 46.13 | 46.25 | 46.34 |
| 28 | 47.87 | 47.41 | 45.91 | 45.77 | 45.81 | 45.84 | 45.89 | 45.90 | 46.23 | 46.13 | 46.25 | 46.34 |
| 29 | 47.88 | 47.38 | 45.90 | 45.77 | --- | 45.84 | 45.89 | 45.90 | 46.21 | 46.14 | 46.25 | 46.34 |
| 30 | 47.89 | 47.31 | 45.89 | 45.77 | --- | 45.85 | 45.89 | 45.90 | 46.20 | 46.14 | 46.25 | 46.34 |
| 31 | 47.91 | --- | 45.89 | 45.77 | --- | 45.85 | --- | 45.90 | --- | 46.14 | 46.26 | --- |
| MEAN | 47.82 | 47.85 | 46.34 | 45.81 | 45.77 | 45.85 | 45.89 | 45.90 | 46.14 | 46.14 | 46.20 | 46.30 |

WTR YR 1993 MEAN 46.34 HIGHEST 45.74 FEB. 10, 11, 1993 LOWEST 48.10 NOV. 6, 7, 1992



GROUND-WATER LEVELS

RIO SALINAS TO RIO JACAGUAS BASINS

175946066102000 Local number, HW-TW-14.

LOCATION.--Lat 17°59'46", long 66°10'20", Hydrologic Unit 21010004, 4.42 northeast of Central Aguirre Church, 3.41 mi northwest of Escuela de Guayama, and 2.01 mi northeast of Hwy 3 km 146.3. Owner: U.S. Geological Survey, WRD, Name: HW-TW-14.

AQUIFER.--Fractured, volcanic rock, water-table aquifer.

WELL CHARACTERISTICS.--Drilled observation well, diameter 7 in (0.18 m), 0-79 ft (0-24.4 m), cased 4 in (0.10 m), 0-79 ft (0-24.1 m), screened 71-78 ft (21.6-23.8 m). Depth 79 ft (24.1 m).

INSTRUMENTATION.--Digital water level recorder--60-minute punch.

DATUM.--Elevation of land-surface datum is 205 ft (62.5 m) above mean sea level.

Measuring point: Hole on side of casing, 3.02 ft (0.92 m) above land-surface datum. Prior October 7, 1988, top of shelter floor, 3.67 ft (1.12 m) above land-surface datum.

REMARKS.--Recording Observation well. Well dry at 73.56 ft (22.42 m).

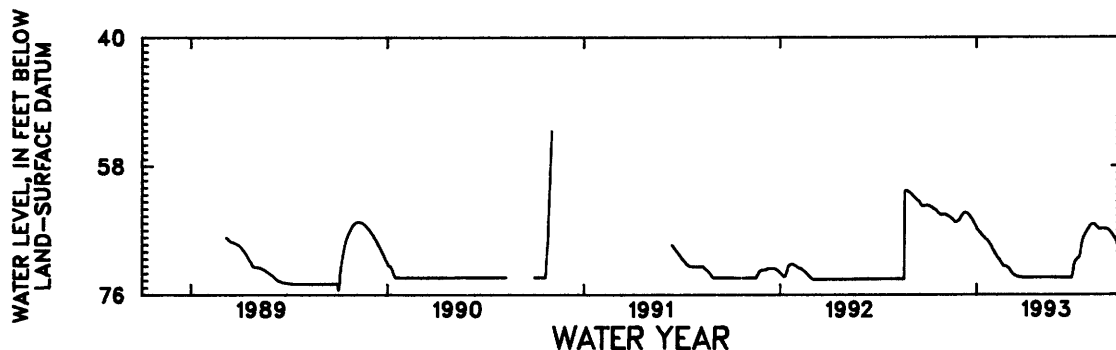
PERIOD OF RECORD.--December 1987 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 41.1 ft (12.5 m) below land-surface datum, Dec. 17, 1987; lowest water level recorded, 75.35 ft (23.0 m) below land-surface datum, Oct. 2, 1989.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993
INSTANTANEOUS OBSERVATION AT 1200

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| 1 | 63.48 | 64.72 | 65.45 | 66.61 | 69.68 | 72.22 | 73.56 | 73.57 | 73.57 | 71.87 | 66.28 | 66.81 |
| 2 | 63.49 | 64.71 | 65.32 | 66.81 | 69.84 | 72.28 | 73.56 | 73.57 | 73.57 | 71.65 | 66.20 | 66.86 |
| 3 | 63.51 | 64.74 | 65.16 | 66.90 | 69.96 | 72.35 | 73.56 | 73.57 | 73.57 | 71.44 | 66.17 | 66.91 |
| 4 | 63.52 | 64.75 | 65.02 | 67.00 | 70.09 | 72.50 | 73.56 | 73.57 | 73.57 | 71.30 | 66.13 | 66.96 |
| 5 | 63.54 | 64.77 | 64.89 | 67.08 | 70.23 | 72.64 | 73.56 | 73.57 | 73.57 | 71.18 | 66.11 | 67.04 |
| 6 | 63.56 | 64.81 | 64.78 | 67.16 | 70.31 | 72.75 | 73.56 | 73.57 | 73.57 | 71.07 | 66.10 | 67.12 |
| 7 | 63.60 | 64.88 | 64.70 | 67.24 | 70.45 | 72.84 | 73.56 | 73.57 | 73.57 | 70.98 | 66.11 | 67.22 |
| 8 | 63.65 | 64.92 | 64.63 | 67.35 | 70.59 | 72.92 | 73.56 | 73.57 | 73.57 | 70.90 | 66.13 | 67.31 |
| 9 | 63.70 | 64.95 | 64.55 | 67.44 | 70.71 | 73.01 | 73.56 | 73.57 | 73.57 | 70.84 | 66.18 | 67.41 |
| 10 | 63.74 | 65.00 | 64.51 | 67.53 | 70.82 | 73.08 | 73.56 | 73.57 | 73.57 | 70.80 | 66.23 | 67.50 |
| 11 | 63.79 | 65.04 | 64.49 | 67.61 | 70.92 | 73.17 | 73.56 | 73.57 | 73.57 | 70.75 | 66.32 | 67.62 |
| 12 | 63.83 | 65.09 | 64.48 | 67.69 | 71.02 | 73.22 | 73.56 | 73.57 | 73.57 | 70.60 | 66.40 | 67.71 |
| 13 | 63.90 | 65.15 | 64.50 | 67.78 | 71.12 | 73.27 | 73.56 | 73.57 | 73.57 | 70.22 | 66.48 | 67.84 |
| 14 | 63.97 | 65.21 | 64.53 | 67.85 | 71.25 | 73.32 | 73.56 | 73.57 | 73.57 | 69.69 | 66.56 | 67.95 |
| 15 | 64.03 | 65.25 | 64.61 | 67.96 | 71.35 | 73.36 | 73.56 | 73.57 | 73.57 | 69.23 | 66.65 | 68.07 |
| 16 | 64.07 | 65.32 | 64.66 | 68.07 | 71.48 | 73.39 | 73.56 | 73.57 | 73.57 | 68.85 | 66.75 | 68.20 |
| 17 | 64.10 | 65.39 | 64.71 | 68.16 | 71.62 | 73.42 | 73.56 | 73.57 | 73.57 | 68.51 | 66.81 | 68.34 |
| 18 | 64.15 | 65.45 | 64.79 | --- | 71.73 | 73.44 | 73.56 | 73.57 | 73.57 | 68.23 | 66.82 | 68.47 |
| 19 | 64.24 | 65.55 | 64.90 | --- | 71.85 | 73.47 | 73.56 | 73.57 | 73.57 | 67.99 | 66.80 | 68.62 |
| 20 | 64.34 | 65.65 | 65.00 | --- | 71.95 | 73.49 | 73.57 | 73.57 | 73.57 | 67.80 | 66.77 | 68.78 |
| 21 | 64.43 | 65.74 | 65.10 | 68.35 | 71.99 | 73.51 | 73.57 | 73.57 | 73.57 | 67.62 | 66.77 | 68.90 |
| 22 | 64.51 | 65.82 | 65.21 | 68.46 | 72.00 | 73.53 | 73.57 | 73.57 | 73.57 | 67.48 | 66.75 | 69.05 |
| 23 | 64.58 | 65.83 | 65.33 | 68.57 | 72.01 | 73.54 | 73.57 | 73.57 | 73.57 | 67.36 | 66.74 | 69.19 |
| 24 | 64.64 | 65.83 | 65.45 | 68.68 | 72.03 | 73.54 | 73.57 | 73.57 | 73.57 | 67.25 | 66.74 | 69.32 |
| 25 | 64.73 | 65.82 | 65.57 | 68.81 | 72.05 | 73.55 | 73.57 | 73.57 | 73.57 | 67.13 | 66.76 | 69.49 |
| 26 | 64.78 | 65.78 | 65.68 | 68.91 | 72.08 | 73.55 | 73.57 | 73.57 | 73.57 | 66.99 | 66.76 | 69.63 |
| 27 | 64.80 | 65.71 | 65.91 | 69.03 | 72.13 | 73.55 | 73.57 | 73.57 | 73.57 | 66.86 | 66.76 | 69.77 |
| 28 | 64.81 | 65.67 | 66.02 | 69.18 | 72.16 | 73.55 | 73.57 | 73.57 | 73.25 | 66.74 | 66.76 | 69.91 |
| 29 | 64.76 | 65.63 | 66.15 | 69.28 | --- | 73.56 | 73.57 | 73.57 | 72.93 | 66.61 | 66.76 | 70.03 |
| 30 | 64.74 | 65.55 | 66.32 | 69.43 | --- | 73.56 | 73.57 | 73.57 | 72.33 | 66.49 | 66.76 | 70.15 |
| 31 | 64.73 | --- | 66.46 | 69.57 | --- | 73.56 | --- | 73.57 | --- | 66.38 | 66.76 | --- |
| MEAN | 64.12 | 65.29 | 65.13 | 68.02 | 71.19 | 73.20 | 73.56 | 73.57 | 73.50 | 69.06 | 66.53 | 68.27 |

WTR YR 1993 MEAN 69.27 HIGHEST 63.47 OCT. 1, 2, 1992 LOWEST 73.57 APR. 19 TO JUNE 27, 1993



GROUND-WATER LEVELS
RIO SALINAS TO RIO JACAGUAS BASINS

180206066135500. Local number, RM # 5.

LOCATION.--Lat 18°02'06", long 66°13'55", Hydrologic Unit 21010004, 6.98 mi southwest of Cayey plaza, 0.63 mi east of Hwy 1 km 82.3 on Rabo del Buey, and 1.75 mi southeast of Capilla de Santa Marta. Owner: U.S. Geological Survey, WRD, Name: RM # 5.

AQUIFER.--Quaternary alluvium.

WELL CHARACTERISTICS.--Drilled observation water-table well, diameter 4 in (0.10 m), cased 4 in (0.10 m), 0-34 ft (0-10.4 m), screened 24-34 ft (7.32-10.7 m). Depth 34 ft (10.4 m).

INSTRUMENTATION.--Digital water level recorder--60-minute punch.

DATUM.--Elevation of land-surface datum is 276.35 ft (84.2 m) above mean sea level.

Measuring point: Top of shelter floor, 3.28 ft (1.0 m) above land-surface datum.

REMARKS.--Recording observation well. Pumping test performed during February 2, 7, 1990.

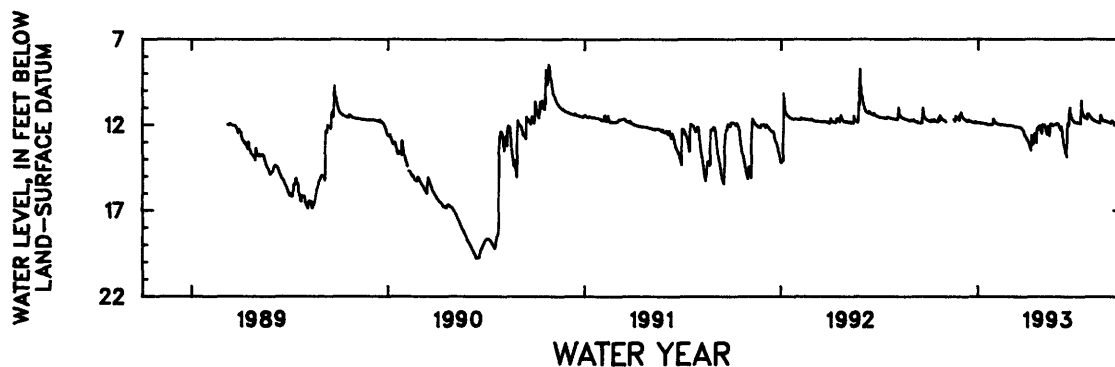
PERIOD OF RECORD.--March 9, 1989 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level recorded, 7.48 ft (2.28 m) below land-surface datum, May 26, 1992; lowest water level recorded, 19.87 ft (6.06 m) below land-surface datum, June 14, 1990.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993
INSTANTANEOUS OBSERVATION AT 1200

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| 1 | 11.77 | 11.78 | 11.45 | 11.87 | 11.86 | 12.05 | 12.82 | 12.00 | 12.10 | 11.87 | 11.68 | 11.86 |
| 2 | 11.77 | 11.83 | 11.52 | 11.87 | 11.88 | 12.05 | 12.87 | 12.08 | 12.26 | 11.88 | 11.69 | 11.87 |
| 3 | 11.79 | --- | 11.59 | 11.88 | 11.90 | 12.05 | 12.92 | 12.02 | 12.27 | 11.89 | 11.72 | 11.88 |
| 4 | 11.81 | --- | 11.62 | 11.90 | 11.93 | 12.05 | 12.99 | 11.99 | 12.10 | 11.86 | 11.77 | 11.90 |
| 5 | 11.82 | --- | 11.65 | 11.90 | 11.95 | 12.06 | 13.05 | 12.06 | 12.34 | 11.88 | 11.77 | 11.90 |
| 6 | 11.79 | --- | 11.67 | 11.90 | 11.96 | 12.06 | 13.15 | 12.20 | 12.62 | 11.89 | 11.77 | 11.75 |
| 7 | 11.72 | --- | 11.70 | 11.90 | 11.96 | 12.06 | 13.27 | 12.33 | 12.81 | 11.90 | 11.78 | 11.80 |
| 8 | 11.77 | --- | 11.73 | 11.90 | 11.97 | 12.08 | 13.38 | 12.47 | 13.00 | 11.92 | 11.80 | 11.85 |
| 9 | 11.78 | --- | 11.75 | 11.91 | 11.98 | 12.09 | 13.49 | 12.56 | 13.16 | 11.93 | 11.82 | 11.87 |
| 10 | 11.80 | --- | 11.77 | 11.92 | 11.99 | 12.11 | 12.57 | 12.14 | 13.28 | 11.94 | 11.83 | 11.88 |
| 11 | 11.70 | --- | 11.77 | 11.93 | 12.00 | 12.11 | 12.90 | 12.09 | 13.42 | 10.56 | 11.84 | 11.88 |
| 12 | 11.73 | --- | 11.78 | 11.93 | 12.01 | 12.12 | 13.10 | 12.43 | 13.57 | 11.08 | 11.85 | 11.89 |
| 13 | 11.77 | --- | 11.80 | 11.94 | 11.97 | 12.11 | 13.13 | 12.65 | 13.72 | 11.31 | 11.85 | 11.91 |
| 14 | 11.79 | --- | 11.74 | 11.95 | 11.97 | 12.10 | 13.04 | 12.40 | 13.86 | 11.39 | 11.88 | 11.94 |
| 15 | 11.81 | --- | 11.77 | 11.95 | 11.99 | 12.11 | 12.95 | 11.90 | 12.99 | 11.47 | 11.89 | 11.95 |
| 16 | 11.83 | --- | 11.78 | 11.95 | 11.99 | 12.13 | 12.48 | 11.96 | 11.89 | 11.49 | 11.43 | 11.94 |
| 17 | 11.83 | 11.70 | 11.80 | 11.98 | 12.00 | 12.14 | 12.75 | 11.99 | 11.97 | 11.54 | 11.50 | 11.87 |
| 18 | 11.82 | 11.77 | 11.81 | 11.98 | 12.01 | 12.14 | 12.97 | 11.96 | 12.05 | 11.58 | 11.63 | 11.64 |
| 19 | 11.63 | 11.79 | 11.84 | 11.98 | 12.01 | 12.15 | 13.04 | 11.98 | 11.21 | 11.62 | 11.69 | 11.75 |
| 20 | 11.70 | 11.47 | 11.85 | 12.00 | 12.01 | 12.14 | 12.18 | 12.05 | 11.00 | 11.62 | 11.71 | 11.80 |
| 21 | 11.76 | 11.61 | 11.86 | 12.00 | 12.03 | 12.16 | 12.23 | 12.00 | 11.36 | 11.64 | 11.76 | 11.48 |
| 22 | 11.45 | 11.56 | 11.87 | 12.00 | 12.04 | 12.18 | 12.27 | 12.00 | 11.47 | 11.66 | 11.77 | 11.60 |
| 23 | 11.57 | 11.61 | 11.87 | 11.99 | 12.04 | 12.22 | 12.09 | 11.98 | 11.57 | 11.36 | 11.76 | 11.64 |
| 24 | 11.61 | 11.65 | 11.88 | 11.99 | 12.04 | 12.27 | 12.07 | 11.96 | 11.64 | 11.37 | 11.75 | 11.49 |
| 25 | 11.63 | 11.66 | 11.87 | 11.99 | 12.04 | 12.30 | 12.05 | 11.98 | 11.69 | 11.36 | 11.77 | 11.61 |
| 26 | 11.68 | 11.69 | 11.89 | 11.99 | 12.04 | 12.35 | 12.05 | 11.91 | 11.74 | 11.43 | 11.78 | 11.60 |
| 27 | --- | 11.73 | 11.82 | 11.99 | 12.04 | 12.46 | 12.33 | 11.95 | 11.79 | 11.49 | 11.79 | 11.67 |
| 28 | --- | 11.40 | 11.87 | 11.95 | 12.05 | 12.56 | 12.44 | 11.91 | 11.83 | 11.54 | 11.81 | 11.70 |
| 29 | 11.73 | 11.54 | 11.87 | 11.65 | --- | 12.63 | 12.50 | 11.95 | 11.85 | 11.59 | 11.83 | 11.69 |
| 30 | 11.74 | 11.28 | 11.88 | 11.71 | --- | 12.69 | 11.96 | 11.99 | 11.85 | 11.63 | 11.84 | 11.70 |
| 31 | 11.75 | --- | 11.87 | 11.82 | --- | 12.74 | --- | 12.14 | --- | 11.66 | 11.85 | --- |
| MEAN | 11.74 | 11.63 | 11.77 | 11.92 | 11.99 | 12.21 | 12.70 | 12.10 | 12.28 | 11.59 | 11.76 | 11.78 |

WTR YR 1993 MEAN 11.97 HIGHEST 10.54 JULY 11, 1993 LOWEST 13.86 JUNE 14, 1993



GROUND-WATER LEVELS

491

RIO SALINAS TO RIO JACAGUAS BASINS

180104066152300. Local number, RM # 10.

LOCATION.--Lat 18°01'04", long 66°15'23", Hydrologic Unit 21010004, 8.00 mi southeast of Coamo plaza, 1.07 mi northeast of Escuela de Coco, and 0.70 mi southwest of Escuela Sabana Llana. Owner: U.S. Geological Survey, WRD, Name: RM # 10.

AQUIFER.--Quaternary alluvium.

WELL CHARACTERISTICS.--Drilled observation water-table well, diameter 4 in (0.10 m), cased 4 in (0.10 m), 0-37 ft (0-11.3 m), screened 27-37 ft (8.23-11.3 m). Depth 37 ft (11.3 m).

INSTRUMENTATION.--Digital water level recorder--15-minute punch.

DATUM.--Elevation of land-surface datum is 164.13 ft (50.0 m) above mean sea level, from leveling survey.

Measuring point: Top of shelter floor, 3.62 ft (1.10 m) above land-surface datum.

REMARKS.--Recording observation well. Pumping test performed on February 8, 1990.

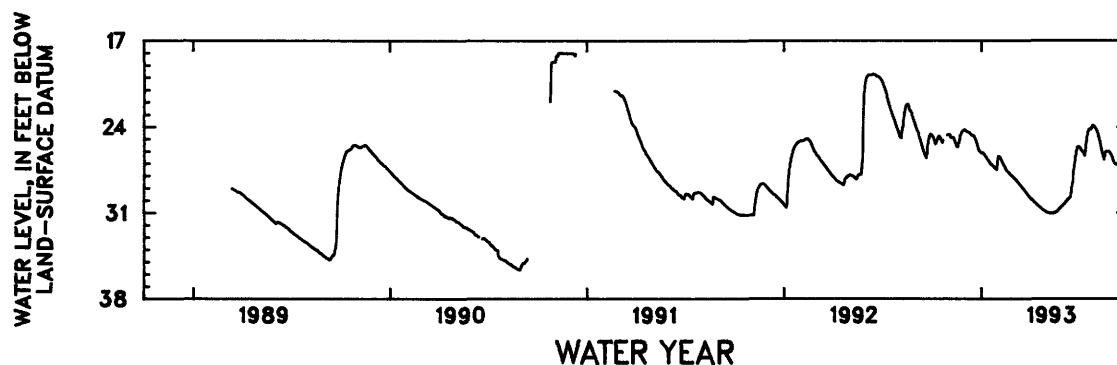
PERIOD OF RECORD.--March 13, 1989 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level recorded, 18.0 ft (5.49 m) below land-surface datum, Nov. 9, 1990; lowest water level recorded, 35.56 ft (10.8 m) below land-surface datum, Aug. 28-29, 1990.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993
INSTANTANEOUS OBSERVATION AT 1200

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| 1 | 24.73 | 24.61 | 24.25 | 26.14 | 26.41 | 28.15 | 29.76 | 30.96 | 30.38 | 25.67 | 24.20 | 26.64 |
| 2 | 24.81 | 24.65 | 24.32 | 26.13 | 26.41 | 28.20 | 29.82 | 30.99 | 30.34 | 25.71 | 24.29 | 26.77 |
| 3 | 24.89 | 24.72 | 24.35 | 26.11 | 26.44 | 28.23 | 29.87 | 31.01 | 30.28 | 25.78 | 24.38 | 26.86 |
| 4 | 25.00 | 24.82 | 24.37 | 26.16 | 26.50 | 28.28 | 29.92 | 31.02 | 30.24 | 25.88 | 24.50 | 26.99 |
| 5 | 25.11 | 24.88 | 24.38 | 26.24 | 26.58 | 28.32 | 29.96 | 31.04 | 30.19 | 25.94 | 24.68 | 27.03 |
| 6 | 25.26 | 24.87 | 24.40 | 26.29 | 26.68 | 28.38 | 30.01 | 31.06 | 30.14 | 25.98 | 24.86 | 27.07 |
| 7 | 25.40 | 24.87 | 24.42 | 26.35 | 26.77 | 28.43 | 30.05 | 31.06 | 30.08 | 26.04 | 25.02 | 27.07 |
| 8 | 25.35 | 24.85 | 24.46 | 26.42 | 26.86 | 28.48 | 30.09 | 31.07 | 30.03 | 26.10 | 25.21 | 27.06 |
| 9 | 25.17 | 24.88 | 24.49 | 26.47 | 26.96 | 28.53 | 30.14 | 31.07 | 29.98 | 26.20 | 25.41 | 27.06 |
| 10 | 25.04 | 24.98 | 24.54 | 26.53 | 27.04 | 28.58 | 30.18 | 31.07 | 29.93 | 26.28 | 25.61 | 27.10 |
| 11 | 24.99 | 25.09 | 24.58 | 26.60 | 27.14 | 28.63 | 30.23 | 31.07 | 29.89 | 26.38 | 25.81 | 27.18 |
| 12 | 24.83 | 25.20 | 24.63 | 26.69 | 27.22 | 28.68 | 30.27 | 31.07 | 29.83 | 26.09 | 26.00 | 27.23 |
| 13 | 24.78 | 25.33 | 24.68 | 26.75 | 27.30 | 28.73 | 30.33 | 31.06 | 29.79 | 25.62 | 26.19 | 27.33 |
| 14 | 24.76 | 25.45 | 24.69 | 26.81 | 27.40 | 28.79 | 30.36 | 31.05 | 29.75 | 25.21 | 26.36 | 27.39 |
| 15 | 24.81 | 25.55 | 24.69 | 26.87 | 27.47 | 28.84 | 30.40 | 31.03 | 29.71 | 24.89 | 26.54 | 27.48 |
| 16 | 24.89 | 25.64 | 24.71 | 26.93 | 27.55 | 28.90 | 30.45 | 31.00 | 29.36 | 24.63 | 26.70 | 27.59 |
| 17 | 25.01 | 25.64 | 24.76 | 27.02 | 27.62 | 28.95 | 30.49 | 30.99 | 28.96 | 24.43 | 26.35 | 27.60 |
| 18 | 25.12 | 25.39 | 24.83 | 27.06 | 27.66 | 28.99 | 30.53 | 30.97 | 28.65 | 24.30 | 26.17 | 27.61 |
| 19 | 25.25 | 25.31 | 24.92 | 27.12 | 27.71 | 29.04 | 30.56 | 30.94 | 28.49 | 24.21 | 26.04 | 27.59 |
| 20 | 25.28 | 25.26 | 25.03 | 27.12 | 27.77 | 29.08 | 30.60 | 30.91 | 27.86 | 24.17 | 26.02 | 27.57 |
| 21 | 25.11 | 24.98 | 25.16 | 27.16 | 27.82 | 29.15 | 30.64 | 30.88 | 27.49 | 24.17 | 26.00 | 27.12 |
| 22 | --- | 24.68 | 25.29 | 27.21 | 27.86 | 29.20 | 30.67 | 30.85 | 27.13 | 24.19 | 26.00 | 26.98 |
| 23 | --- | 24.60 | 25.43 | 27.26 | 27.90 | 29.25 | 30.72 | 30.80 | 26.76 | 24.17 | 26.00 | 26.89 |
| 24 | --- | 24.50 | 25.59 | 27.30 | 27.95 | 29.31 | 30.76 | 30.76 | 26.39 | 24.05 | 26.01 | 26.72 |
| 25 | --- | 24.39 | 25.73 | 27.36 | 27.99 | 29.37 | 30.79 | 30.71 | 26.13 | 23.95 | 26.01 | 26.41 |
| 26 | --- | 24.32 | 25.87 | 27.41 | 28.03 | 29.42 | 30.82 | 30.66 | 25.91 | 23.89 | 26.05 | 26.16 |
| 27 | --- | 24.28 | 25.97 | 27.44 | 28.07 | 29.48 | 30.85 | 30.61 | 25.75 | 23.89 | 26.13 | 25.89 |
| 28 | --- | 24.25 | 25.99 | 27.49 | 28.11 | 29.54 | 30.88 | 30.56 | 25.67 | 23.92 | 26.23 | 25.73 |
| 29 | 24.67 | 24.23 | 26.04 | 27.51 | --- | 29.60 | 30.91 | 30.52 | 25.64 | 23.98 | 26.30 | 25.63 |
| 30 | 24.65 | 24.22 | 26.10 | 27.00 | --- | 29.66 | 30.93 | 30.47 | 25.63 | 24.05 | 26.39 | 25.48 |
| 31 | 24.62 | --- | 26.14 | 26.55 | --- | 29.71 | --- | 30.44 | --- | 24.13 | 26.52 | --- |
| MRAN | 24.98 | 24.88 | 24.99 | 26.82 | 27.33 | 28.90 | 30.40 | 30.89 | 28.55 | 24.96 | 25.74 | 26.91 |

WTR YR 1993 MEAN 27.15 HIGHEST 23.89 JULY 26-28, 1993 LOWEST 31.07 MAY 7-13, 1993



GROUND-WATER LEVELS

RIO INABON TO RIO LOCO BASINS

180133066503300. Local number, 132.

LOCATION.--Lat 18°01'33", long 66°50'33", Hydrologic Unit 21010004, 0.90 mi southeast of Yauco plaza, 3.46 mi east of Guayanilla plaza, and 1.32 mi north of Escuela Segunda Unidad Barinas. Owner: Pittsburg Plate Glass 4, Name: Yauco 2.

AQUIFER.--Limestone of Tertiary Age.

WELL CHARACTERISTICS.--Drilled observation well, cased 20 in (0.51 m) 0-20 ft (0-6.1 m), 12 in (0.30 m) perforated pipe 20-84 ft (6.1-25.61 m), 10 in (0.25 m) perforated pipe 84-190 ft (25.61-57.93 m). Depth 190 ft (57.93 m).

INSTRUMENTATION.--Digital water level recorder--60-minute punch.

DATUM.--Elevation of land-surface datum is about 75 ft (22.87 m) above mean sea level, from topographic map.

Measuring point: Top of shelter floor, 2.35 ft (0.72 m) above land-surface datum.

REMARKS.--Recording observation well.

PERIOD OF RECORD.--July 1972 to current year.

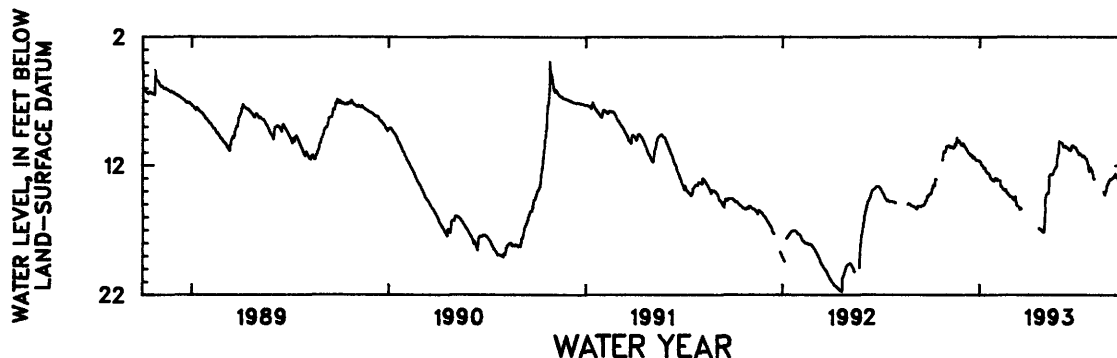
EXTREMES FOR PERIOD OF RECORD.--Highest water level recorded, +0.12 ft (0.04 m) below land-surface datum, July 19, 1979; lowest water level recorded, 36.91 ft (11.25 m) below land-surface datum, June 27, 1974.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993
INSTANTANEOUS OBSERVATION AT 1200

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| 1 | 14.24 | 10.49 | 10.33 | 11.66 | 13.00 | 14.42 | --- | 16.33 | 10.22 | 10.89 | 13.06 | 13.03 |
| 2 | 14.14 | 10.47 | 10.40 | 11.70 | 13.04 | 14.51 | --- | 15.61 | 10.23 | 10.97 | 13.04 | 13.07 |
| 3 | 14.14 | 10.46 | 10.45 | 11.77 | 13.14 | 14.56 | --- | 14.69 | 10.28 | 11.05 | --- | 13.02 |
| 4 | 14.14 | 10.42 | 10.55 | 11.96 | 13.15 | 14.56 | --- | 14.39 | 10.46 | 11.14 | --- | 12.97 |
| 5 | 13.80 | 10.47 | 10.58 | 12.01 | 13.17 | 14.61 | --- | 14.24 | 10.56 | 11.12 | --- | 12.95 |
| 6 | 13.79 | 10.54 | 10.65 | 12.03 | 13.17 | 14.68 | --- | 14.19 | 10.56 | 11.06 | --- | 12.94 |
| 7 | 13.51 | 10.57 | 10.71 | 12.05 | 13.18 | 14.44 | --- | 14.17 | 10.53 | 11.13 | --- | 12.80 |
| 8 | 13.53 | 10.60 | 10.79 | 12.20 | 13.18 | 14.42 | --- | 14.14 | 10.57 | 11.17 | --- | 12.80 |
| 9 | 13.54 | 10.50 | 10.88 | 12.18 | 13.64 | 14.47 | --- | 14.08 | 10.49 | 11.24 | --- | 12.72 |
| 10 | 13.54 | 10.58 | 10.95 | 12.22 | 13.63 | 14.85 | --- | 12.80 | 10.57 | 11.33 | --- | 12.63 |
| 11 | 13.02 | 10.60 | 11.01 | 12.20 | 13.65 | 15.09 | --- | 12.71 | 10.60 | 11.30 | --- | 12.88 |
| 12 | 13.08 | 10.61 | 11.06 | 12.45 | 13.78 | 15.11 | --- | 12.68 | 10.61 | 11.24 | --- | 12.91 |
| 13 | 13.09 | 10.64 | 11.11 | 12.46 | 13.84 | 15.16 | --- | 12.69 | 10.61 | 11.26 | --- | 12.77 |
| 14 | --- | 10.54 | 11.10 | 12.50 | 13.84 | 15.18 | --- | 12.72 | 10.70 | 11.30 | --- | 12.96 |
| 15 | --- | 10.54 | 11.24 | 12.56 | 13.88 | 15.22 | --- | 12.67 | 10.80 | 11.38 | --- | 13.12 |
| 16 | --- | 10.31 | 11.25 | 12.60 | 13.95 | 15.41 | --- | 12.66 | 10.77 | 11.46 | --- | 13.12 |
| 17 | --- | 10.39 | 11.26 | 12.60 | 13.88 | 15.26 | --- | 12.55 | 10.78 | 11.49 | --- | 12.99 |
| 18 | --- | 10.19 | 11.21 | 12.62 | 13.85 | 15.26 | --- | 12.43 | 10.84 | 11.49 | --- | 12.89 |
| 19 | --- | 9.83 | 11.43 | 12.74 | 13.89 | 15.38 | --- | 12.32 | 10.74 | 11.68 | --- | 12.84 |
| 20 | --- | 10.06 | 11.33 | 12.78 | 14.11 | --- | --- | 12.26 | 10.54 | 11.85 | 14.06 | 12.82 |
| 21 | --- | 10.16 | 11.33 | 12.99 | 14.11 | --- | 16.86 | 12.13 | 10.46 | 11.96 | 14.25 | 12.83 |
| 22 | --- | 10.12 | 11.43 | 13.01 | 14.11 | --- | 16.90 | 12.14 | 10.45 | 12.27 | 14.28 | 12.66 |
| 23 | --- | 10.07 | 11.51 | 13.06 | 14.22 | --- | 16.94 | 12.09 | 10.45 | 12.47 | 14.01 | 12.93 |
| 24 | 11.58 | 10.16 | 11.55 | 13.12 | 14.30 | --- | 17.00 | 12.00 | 10.50 | 12.19 | 13.92 | 12.67 |
| 25 | 10.99 | 10.24 | 11.60 | 13.11 | 14.32 | --- | 16.99 | 11.25 | 10.57 | 12.16 | 13.60 | 12.65 |
| 26 | 10.89 | 10.34 | 11.59 | 13.17 | 14.36 | --- | 16.99 | 11.13 | 10.58 | 12.15 | 13.48 | 12.65 |
| 27 | 10.97 | 10.37 | 11.60 | 13.17 | 14.41 | --- | 17.11 | 11.05 | 10.58 | 12.40 | 13.43 | 12.54 |
| 28 | 10.94 | 10.42 | 11.61 | 13.17 | 14.41 | --- | 17.15 | 10.09 | 10.60 | 12.37 | 13.32 | 12.45 |
| 29 | 10.87 | 10.42 | 11.61 | 13.00 | --- | --- | 17.16 | 10.22 | 10.74 | 12.55 | 13.17 | 12.29 |
| 30 | 10.77 | 10.28 | 11.62 | 12.99 | --- | --- | 17.10 | 10.22 | 10.79 | 12.72 | 13.17 | 12.33 |
| 31 | 10.51 | --- | 11.68 | 13.00 | --- | --- | --- | 10.22 | --- | 12.93 | 13.05 | --- |
| MEAN | --- | 10.38 | 11.14 | 12.55 | 13.76 | --- | --- | 12.67 | 10.57 | 11.67 | --- | 12.81 |

WTR YR 1993 MEAN 12.40 HIGHEST 9.81 NOV. 19, 1992 LOWEST 17.16 AUG. 29, 30, 1993

+ Above land-surface datum.



GROUND-WATER LEVELS

493

RIO INABON TO RIO LOCO BASINS

175950066354200. Local number, 141.

LOCATION.--Lat 17°59'50", long 66°35'42", Hydrologic Unit 21010004, 1.71 mi southeast of Plaza Degetau at Ponce, 1.31 mi southeast of the intersection between Hwy 10 and Hwy 2, and 2.60 mi northeast of Muelle de Ponce.

Owner: P.R. Aqueduct and Sewer Authority, Name: Restaurada 8A.

AQUIFER.--Alluvium of Quaternary Age.

WELL CHARACTERISTICS.--Drilled unused public supply well, diameter 16-10 in (0.41-0.25 m), cased 16 in (0.41 m) 2-20 ft (0.6-6.1 m), perforated 20-130 ft (6.10-39.6 m), 10 in (0.25 m) 128-165 ft (39.0-50.3 m), perforated. Depth 165 ft (50.3 m).

INSTRUMENTATION.--Digital water level recorder--60-minute punch.

DATUM.--Elevation of land-surface datum is about 24 ft (7.30 m) above mean sea level, from topographic map.

Measuring point: Bottom edge of hole on side of casing 1.90 ft (0.58 m) above land-surface datum, 26.2 ft (7.67 m), above mean sea level..

REMARKS.--Recording observation well.

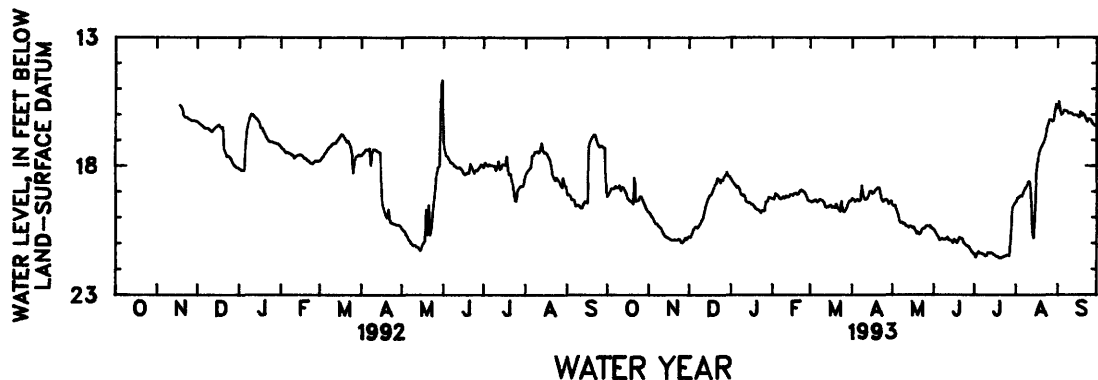
PERIOD OF RECORD.--October 1981 to March 1, 1986, discontinued, November 18, 1991 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level recorded, 11.2 ft (3.41 m) below land-surface datum, Oct. 9, 1985; lowest water level recorded, 28.6 ft (8.71 m) below land-surface datum, July 9, 1982.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993
INSTANTANEOUS OBSERVATION AT 1200

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| 1 | 19.22 | 19.80 | 20.74 | 18.51 | 19.27 | 19.38 | 19.26 | 19.53 | 20.48 | 21.43 | 19.38 | 15.78 |
| 2 | 19.07 | 19.86 | 20.77 | 18.60 | 19.29 | 19.40 | 19.31 | 19.56 | 20.58 | 21.55 | 19.24 | 15.47 |
| 3 | 18.98 | 19.96 | 20.62 | 18.69 | 19.07 | 19.37 | 19.38 | 19.53 | 20.68 | 21.40 | 19.21 | 15.88 |
| 4 | 18.87 | 20.03 | 20.47 | 18.76 | 19.13 | 19.33 | 19.32 | 19.72 | 20.75 | 21.33 | 19.16 | 16.03 |
| 5 | 18.89 | 20.16 | 20.38 | 18.83 | 19.17 | 19.32 | 19.30 | 19.89 | 20.88 | 21.39 | 19.18 | 15.93 |
| 6 | 18.86 | 20.25 | 20.36 | 18.81 | 19.26 | 19.40 | 19.36 | 20.14 | 20.85 | 21.39 | 19.05 | 15.83 |
| 7 | 18.79 | 20.25 | 20.42 | 18.90 | 19.28 | 19.35 | 19.32 | 20.21 | 20.83 | 21.42 | 18.92 | 15.84 |
| 8 | 18.85 | 20.33 | 20.33 | 19.10 | 19.24 | 19.30 | 18.74 | 20.19 | 20.86 | 21.44 | 18.84 | 15.87 |
| 9 | 18.84 | 20.38 | 20.25 | 19.15 | 19.20 | 19.32 | 19.16 | 20.25 | 20.85 | 21.49 | 18.74 | 15.96 |
| 10 | 18.76 | 20.43 | 20.12 | 19.13 | 19.25 | 19.35 | 19.28 | 20.24 | 20.82 | 21.48 | 18.64 | 15.94 |
| 11 | 18.96 | 20.55 | 20.04 | 19.19 | 19.17 | 19.42 | 19.31 | 20.33 | 20.77 | 21.37 | 18.60 | 15.94 |
| 12 | 18.83 | 20.66 | 19.79 | 19.39 | 19.21 | 19.58 | 19.27 | 20.35 | 20.88 | 21.37 | 19.34 | 15.99 |
| 13 | 18.86 | 20.74 | 19.56 | 19.41 | 19.20 | 19.61 | 19.15 | 20.39 | 20.90 | 21.36 | 20.62 | 16.03 |
| 14 | 18.97 | 20.76 | 19.39 | 19.43 | 19.12 | 19.58 | 18.97 | 20.34 | 20.91 | 21.39 | 20.83 | 16.01 |
| 15 | 19.07 | 20.79 | 19.26 | 19.44 | 19.11 | 19.56 | 18.97 | 20.35 | 21.00 | 21.43 | 19.64 | 16.02 |
| 16 | 19.27 | 20.83 | 19.15 | 19.49 | 19.15 | 19.52 | 19.08 | 20.40 | 20.85 | 21.46 | 18.28 | 16.06 |
| 17 | 19.33 | 20.86 | 19.12 | 19.50 | 19.08 | 19.61 | 19.03 | 20.38 | 20.93 | 21.50 | 17.83 | 16.10 |
| 18 | 19.37 | 20.88 | 18.99 | 19.57 | 19.06 | 19.58 | 18.94 | 20.49 | 20.99 | 21.52 | 17.47 | 15.88 |
| 19 | 19.41 | 20.88 | 18.86 | 19.65 | 19.11 | 19.62 | 18.89 | 20.63 | 20.88 | 21.54 | 17.33 | 16.04 |
| 20 | 19.48 | 20.86 | 18.73 | 19.70 | 19.07 | 19.47 | 18.84 | 20.57 | 20.78 | 21.58 | 17.22 | 15.95 |
| 21 | 18.45 | 20.88 | 18.67 | 19.71 | 18.98 | 19.61 | 18.85 | 20.66 | 20.82 | 21.56 | 17.13 | 16.05 |
| 22 | 19.39 | 20.88 | 18.47 | 19.76 | 18.93 | 19.68 | 19.13 | 20.61 | 20.83 | 21.54 | 17.01 | 16.17 |
| 23 | 19.36 | 20.84 | 18.52 | 19.82 | 18.97 | 19.76 | 19.32 | 20.45 | 20.98 | 21.51 | 16.83 | 16.28 |
| 24 | 19.33 | 20.86 | 18.65 | 19.74 | 19.00 | 19.36 | 19.38 | 20.43 | 21.04 | 21.49 | 16.53 | 16.16 |
| 25 | 19.18 | 20.98 | 18.54 | 19.73 | 19.07 | 19.77 | 19.31 | 20.41 | 21.10 | 21.47 | 16.36 | 16.19 |
| 26 | 19.20 | 20.98 | 18.55 | 19.74 | 19.20 | 19.79 | 19.31 | 20.33 | 21.12 | 21.46 | 16.19 | 16.25 |
| 27 | 19.31 | 20.89 | 18.42 | 19.38 | 19.33 | 19.73 | 19.33 | 20.33 | 21.14 | 21.48 | 16.22 | 16.36 |
| 28 | 19.44 | 20.80 | 18.35 | 19.37 | 19.37 | 19.61 | 19.47 | 20.34 | 21.24 | 20.80 | 16.26 | 16.41 |
| 29 | 19.56 | 20.86 | 18.24 | 19.21 | --- | 19.44 | 19.42 | 20.32 | 21.32 | 19.63 | 16.24 | 16.44 |
| 30 | 19.68 | 20.78 | 18.39 | 19.24 | --- | 19.35 | 19.37 | 20.41 | 21.40 | 19.53 | 15.86 | 16.48 |
| 31 | 19.76 | --- | 18.42 | 19.26 | --- | 19.35 | --- | 20.44 | --- | 19.45 | 15.57 | --- |
| MEAN | 19.14 | 20.60 | 19.37 | 19.30 | 19.15 | 19.50 | 19.19 | 20.27 | 20.92 | 21.25 | 17.99 | 16.04 |

WTR YR 1993 MEAN 19.40 HIGHEST 14.86 AUG. 31, 1993 LOWEST 21.60 JULY 19, 1993



GROUND-WATER LEVELS

RIO GUANAJIBO BASIN

180132067033800. Local number, 143.

LOCATION.--Lat 18°01'32", long 67°03'38", Hydrologic Unit 21010003, 1.86 mi south of Lajas plaza, 1.27 mi southeast of the Estación Experimental Agrícola, and 1.30 mi northwest of the intersection of Hwy 116 with Hwy 305.

Owner: Pedro P. Vivoni, Name: Vivoni, Hacienda Amistad.

AQUIFER.--Limestone of unknown age.

WELL CHARACTERISTICS.--Drilled unused irrigation well, diameter 12 in (0.30 m). Depth 200 ft (60.98 m).

INSTRUMENTATION.--Digital water level recorder--15-minute punch.

DATUM.--Elevation of land-surface datum is about 52.5 ft (16.0 m) above mean sea level, from topographic map.

Measuring point: Hole side of casing, 0.80 ft (0.24 m) above land-surface datum.

REMARKS.--Recording observation well.

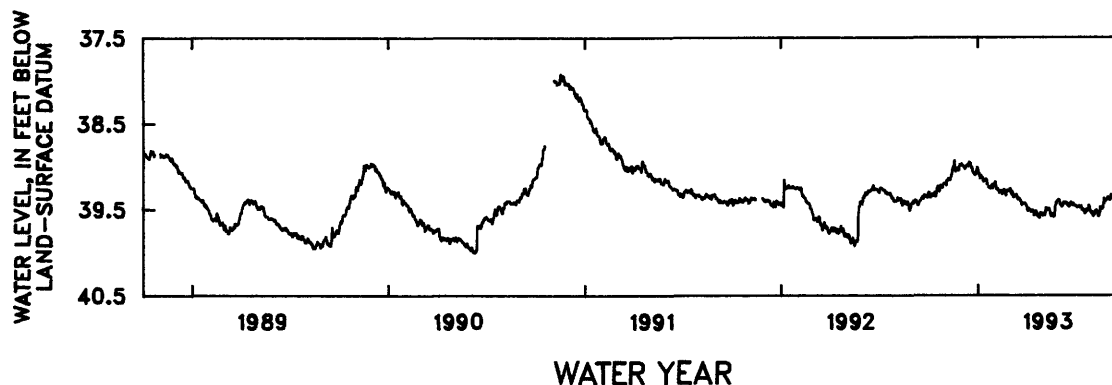
PERIOD OF RECORD.--December 1981 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level recorded, 37.36 ft (11.39 m) below land-surface datum, Nov. 20, 1985; lowest water level recorded, 40.0 ft (12.2 m) below land-surface datum, June 9-11, 1990.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993
INSTANTANEOUS OBSERVATION AT 1200

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| 1 | 39.30 | 39.19 | 38.97 | 39.07 | 39.20 | 39.26 | 39.46 | 39.57 | 39.39 | 39.46 | 39.53 | 39.38 |
| 2 | 39.30 | 39.18 | 38.99 | 39.08 | 39.18 | 39.26 | 39.49 | 39.57 | 39.42 | 39.46 | 39.55 | 39.39 |
| 3 | 39.34 | 39.22 | 38.99 | 39.10 | 39.23 | 39.31 | 39.52 | 39.55 | 39.45 | 39.47 | 39.58 | 39.39 |
| 4 | 39.36 | 39.16 | 39.00 | 39.14 | 39.27 | 39.33 | 39.50 | 39.56 | 39.45 | 39.48 | 39.57 | 39.36 |
| 5 | 39.34 | 39.16 | 39.01 | 39.10 | 39.27 | 39.29 | 39.49 | 39.57 | 39.46 | 39.47 | 39.56 | 39.33 |
| 6 | 39.35 | 39.15 | 39.02 | 39.11 | 39.26 | 39.32 | 39.51 | 39.53 | 39.47 | 39.47 | 39.53 | 39.34 |
| 7 | 39.32 | 39.14 | 39.03 | 39.13 | 39.27 | 39.36 | 39.51 | 39.48 | 39.46 | 39.47 | 39.52 | 39.35 |
| 8 | 39.32 | 39.15 | 39.02 | 39.14 | 39.29 | 39.36 | 39.51 | 39.51 | 39.43 | 39.46 | 39.53 | 39.36 |
| 9 | 39.34 | 39.16 | 39.00 | 39.13 | 39.31 | 39.35 | 39.53 | 39.50 | 39.42 | 39.48 | 39.51 | 39.37 |
| 10 | 39.34 | 39.15 | 39.00 | 39.17 | 39.31 | 39.34 | 39.53 | 39.49 | 39.42 | 39.48 | 39.52 | 39.39 |
| 11 | 39.32 | 39.15 | 38.99 | 39.18 | 39.30 | 39.35 | 39.52 | 39.49 | 39.42 | 39.47 | 39.54 | 39.38 |
| 12 | 39.30 | 39.11 | 38.98 | 39.17 | 39.30 | 39.34 | 39.53 | 39.49 | 39.43 | 39.46 | 39.57 | 39.38 |
| 13 | 39.30 | 39.09 | 39.00 | 39.16 | 39.28 | 39.33 | 39.51 | 39.49 | 39.42 | 39.51 | 39.58 | 39.39 |
| 14 | 39.35 | 39.04 | 38.98 | 39.17 | 39.30 | 39.35 | 39.53 | 39.52 | 39.42 | 39.51 | 39.56 | 39.38 |
| 15 | 39.32 | 39.01 | 38.95 | 39.15 | 39.33 | 39.38 | 39.57 | 39.55 | 39.43 | 39.50 | 39.54 | 39.36 |
| 16 | 39.27 | 39.00 | 38.97 | 39.15 | 39.30 | 39.39 | 39.55 | 39.58 | 39.44 | 39.50 | 39.47 | 39.34 |
| 17 | 39.25 | 38.97 | 38.96 | 39.17 | 39.29 | 39.37 | 39.55 | 39.56 | 39.46 | 39.53 | 39.49 | 39.33 |
| 18 | 39.23 | 38.93 | 38.97 | 39.21 | 39.27 | 39.38 | 39.52 | 39.57 | 39.46 | 39.55 | 39.49 | 39.31 |
| 19 | 39.23 | 39.05 | 39.02 | --- | 39.28 | 39.38 | 39.53 | 39.57 | 39.47 | 39.52 | 39.50 | 39.30 |
| 20 | 39.27 | 39.06 | 39.01 | 39.24 | 39.29 | 39.39 | 39.55 | 39.55 | 39.43 | 39.54 | 39.47 | 39.32 |
| 21 | 39.29 | 39.03 | 39.04 | 39.25 | 39.34 | 39.41 | 39.58 | 39.59 | 39.44 | 39.51 | 39.48 | 39.32 |
| 22 | 39.25 | 39.04 | 39.06 | 39.24 | 39.33 | 39.42 | 39.56 | 39.57 | 39.43 | 39.50 | 39.44 | 39.32 |
| 23 | 39.22 | 39.02 | 39.08 | 39.25 | 39.29 | 39.45 | 39.56 | 39.58 | 39.42 | 39.50 | 39.37 | 39.30 |
| 24 | 39.23 | 39.04 | 39.08 | 39.26 | 39.28 | 39.44 | 39.60 | 39.49 | 39.45 | 39.52 | 39.38 | 39.32 |
| 25 | 39.22 | 39.05 | 39.10 | 39.24 | 39.28 | 39.43 | 39.60 | 39.45 | 39.45 | 39.50 | 39.41 | 39.33 |
| 26 | 39.25 | 39.04 | 39.10 | 39.24 | 39.28 | 39.43 | 39.56 | 39.42 | 39.45 | 39.45 | 39.40 | 39.31 |
| 27 | 39.24 | 38.98 | 39.09 | 39.21 | 39.28 | 39.43 | 39.54 | 39.43 | 39.43 | 39.47 | 39.39 | 39.29 |
| 28 | 39.21 | 38.98 | 39.09 | 39.26 | 39.28 | 39.43 | 39.55 | 39.40 | 39.45 | 39.50 | 39.39 | 39.26 |
| 29 | 39.20 | 38.99 | 39.05 | 39.21 | --- | 39.43 | 39.56 | 39.40 | 39.45 | 39.53 | 39.38 | 39.28 |
| 30 | 39.20 | 38.99 | 39.01 | 39.22 | --- | 39.43 | 39.55 | 39.39 | 39.46 | 39.54 | 39.36 | 39.30 |
| 31 | 39.20 | --- | 39.03 | 39.21 | --- | 39.45 | --- | 39.39 | --- | 39.55 | 39.36 | --- |
| MEAN | 39.28 | 39.07 | 39.02 | 39.18 | 39.28 | 39.37 | 39.54 | 39.51 | 39.44 | 39.50 | 39.48 | 39.34 |

WTR YR 1993 MEAN 39.33 HIGHEST 38.87 NOV. 19, 1992 LOWEST 39.61 APR. 24, 25, 1993



GROUND-WATER LEVELS

495

RIO GUANAJIBO BASIN

180627067080600. Local number, CR-TW-1.

LOCATION.--Lat 18°06'27", long 66°08'06", Hydrologic Unit 21010003, 1.48 mi north of Cabo Rojo plaza, 1.24 mi northwest of Escuela Segunda Unidad Antonio Acarón Correa, and 1.78 mi southwest of Escuela Sabana Alta.

Owner: U.S. Geological Survey, WRD, Name: CR-TW-1.

AQUIFER.--Sand and clay.

WELL CHARACTERISTICS.--Drilled unused water-table well, diameter 4 in (0.10 m), cased 4 in (0.10 m), 0-15 ft (0-4.57 m), screened 5-15 ft (1.52-4.57 m). Depth 15 ft (4.57 m).

INSTRUMENTATION.--Digital water level recorder--60-minute punch.

DATUM.--Elevation of land-surface datum is about 28.6 ft (8.72 m) above mean sea level, from topographic map.

Measuring point: Hole on shelter floor, 8.83 ft (2.79 m) above land-surface datum. Prior February 25, 1993, hole on shelter floor 5.83 ft (1.78 m) above land-surface datum.

REMARKS.--Observation well. Drilled on Mar. 3, 1992. Automatic digital recorder installed on July 16, 1992.

PERIOD OF RECORD.--July 1992 to current year.

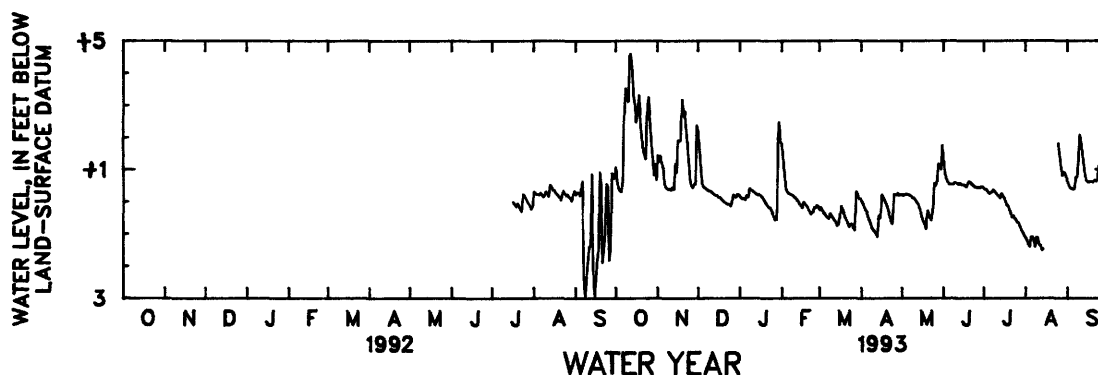
EXTREMES FOR PERIOD OF RECORD.--Highest water level recorded, +4.75 ft (+1.45 m) above land-surface datum, Oct. 12, 1992; lowest water level recorded, 1.63 ft (0.50 m) below land-surface datum, Aug. 14, 1993.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993
INSTANTANEOUS OBSERVATION AT 1200

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|------|-------|-------|-------|-------|-------|------|------|-------|-------|------|-------|-------|
| 1 | +1.07 | +1.44 | +2.21 | +1.14 | +1.78 | .25 | +.01 | +.21 | +1.26 | +.40 | 1.12 | +.59 |
| 2 | +.57 | +1.21 | +1.65 | +.10 | +1.29 | .19 | .07 | +.19 | +.83 | +.37 | 1.21 | +.49 |
| 3 | +.38 | +1.42 | +.99 | +.07 | +.81 | .28 | .19 | +.21 | +.69 | +.36 | 1.33 | +.41 |
| 4 | +.33 | +1.19 | +.52 | +.09 | +.37 | .35 | .27 | +.23 | +.60 | +.29 | 1.40 | +.40 |
| 5 | +.30 | +1.04 | +.44 | +.05 | +.29 | .40 | .32 | +.21 | +.54 | +.25 | 1.10 | +.38 |
| 6 | +.62 | +.53 | +.41 | +.20 | +.25 | .46 | .47 | +.21 | +.53 | +.26 | 1.10 | +.38 |
| 7 | +2.66 | +.44 | +.38 | +.13 | +.23 | .49 | .58 | +.18 | +.53 | +.30 | 1.21 | +.77 |
| 8 | +3.55 | +.40 | +.35 | +.41 | +.21 | .53 | .69 | +.16 | +.53 | +.36 | 1.41 | +.75 |
| 9 | +3.31 | +.37 | +.33 | +.36 | +.18 | .37 | .84 | +.10 | +.58 | +.31 | 1.11 | +1.36 |
| 10 | +3.09 | +.39 | +.31 | +.33 | +.15 | .46 | .89 | +.10 | +.58 | +.24 | 1.12 | +2.09 |
| 11 | +4.54 | +.36 | +.28 | +.30 | +.10 | .51 | .94 | +.04 | +.56 | +.20 | 1.35 | +1.84 |
| 12 | +4.60 | +.44 | +.24 | +.26 | +.05 | .59 | .99 | .03 | +.53 | +.16 | 1.36 | +1.50 |
| 13 | +4.10 | +.38 | +.21 | +.23 | .00 | .64 | 1.10 | .09 | +.57 | +.10 | 1.51 | +1.15 |
| 14 | +3.28 | +1.18 | +.19 | +.20 | .08 | .75 | .43 | .21 | +.53 | +.25 | 1.47 | +.78 |
| 15 | +3.03 | +.89 | +.18 | +.22 | .13 | .71 | .53 | .35 | +.51 | +.16 | --- | +.63 |
| 16 | +2.45 | +1.91 | +.13 | +.19 | .19 | .51 | +.23 | .48 | +.51 | +.09 | --- | +.60 |
| 17 | +2.84 | +1.88 | +.12 | +.14 | .02 | .14 | +.13 | .62 | +.48 | .01 | --- | +.60 |
| 18 | +3.33 | +1.90 | +.07 | +.09 | .07 | .27 | +.05 | .70 | +.45 | .13 | --- | +.62 |
| 19 | +2.61 | +3.19 | +.03 | +.02 | .13 | .39 | .04 | .85 | +.56 | .14 | --- | +.62 |
| 20 | +2.06 | +2.65 | .01 | .05 | .19 | .49 | .16 | .27 | +.62 | .28 | --- | +.60 |
| 21 | +1.65 | +2.82 | .04 | .13 | .28 | .58 | .31 | .41 | +.58 | .38 | --- | +.66 |
| 22 | +1.46 | +2.34 | .07 | .18 | .34 | .68 | .46 | .50 | +.54 | .48 | --- | +.63 |
| 23 | +1.30 | +1.84 | .09 | .19 | .39 | .79 | .61 | .58 | +.49 | .44 | --- | +.67 |
| 24 | +2.83 | +1.23 | .10 | .28 | .33 | .71 | .70 | .18 | +.46 | .52 | --- | +1.11 |
| 25 | +3.26 | +.66 | .14 | .37 | .17 | .71 | +.24 | +.57 | +.44 | .57 | +1.79 | +.88 |
| 26 | +2.62 | +.46 | +.04 | .47 | .19 | .83 | +.22 | +.48 | +.43 | .66 | +1.45 | +.75 |
| 27 | +1.99 | +.43 | +.21 | .57 | .12 | .90 | +.20 | +.63 | +.43 | .67 | +1.08 | +1.35 |
| 28 | +1.42 | +.54 | +.15 | .55 | .17 | +.31 | +.26 | +1.18 | +.42 | .80 | +.78 | +2.20 |
| 29 | +.80 | +.54 | +.13 | +1.96 | --- | +.25 | +.18 | +1.07 | +.45 | .89 | +.92 | +2.22 |
| 30 | +1.17 | +2.39 | +.22 | +2.49 | --- | +.08 | +.21 | +1.00 | +.45 | .97 | +.89 | +1.88 |
| 31 | +.65 | --- | +.21 | +1.82 | --- | +.09 | --- | +1.76 | --- | 1.06 | +.75 | --- |
| MEAN | +2.19 | +1.22 | +.31 | +.23 | +.10 | .43 | .30 | +.11 | +.56 | .13 | .48 | +.96 |

WTR YR 1993 MEAN +.38 HIGHEST +4.75 OCT. 12, 1992 LOWEST 1.63 AUG. 14, 1993

+ Above land-surface datum.



GROUND-WATER LEVELS

RIO GUANAJIBO BASIN

180628067075800. Local number, CR-TW-2A.

LOCATION.--Lat 18°06'28", long 67°07'58", Hydrologic Unit 21010003, 1.56 mi northeast of Cabo Rojo plaza, 0.33 mi northwest of Hacienda La Ratina, and 1.94 mi southeast of Escuela Sabana Alta. Owner: U.S. Geological Survey, WRD, Name: CR-TW-2A.

AQUIFER.--Sand and clay.

WELL CHARACTERISTICS.--Drilled unused water-table well, diameter 4 in (0.10 m), cased 4 in (0.10 m), 0-113 ft (0-34.4 m), screened 105-113 ft (32.0-34.4 m). Depth 113 ft (34.4 m).

INSTRUMENTATION.--Digital water level recorder--60-minute punch.

DATUM.--Elevation of land-surface datum is about 28.85 ft (8.79 m) above mean sea level, from topographic map. Measuring point: Hole on shelter floor 6.10 ft (1.86 m) above land-surface datum.

REMARKS.--Observation well. Drilled on Mar. 6, 1992. Automatic digital recorder installed on July 16, 1992.

PERIOD OF RECORD.--July 1992 to current year.

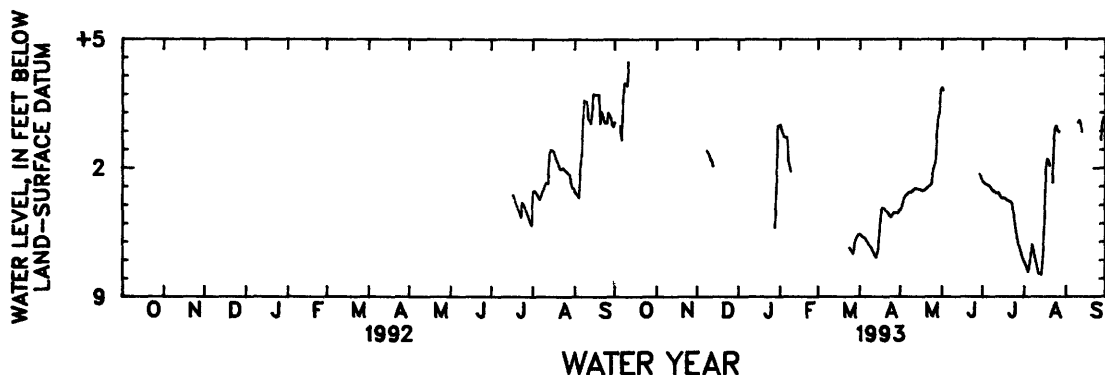
EXTREMES FOR PERIOD OF RECORD.--Highest water level recorded, +4.00 ft (+1.22 m) above land-surface datum, Oct. 12, 1992; lowest water level recorded, 7.84 ft (2.39 m) below land-surface datum, Aug. 12-13, 1993.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993
INSTANTANEOUS OBSERVATION AT 1200

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|------|-------|-----|------|------|-------|------|------|-------|-------|------|-------|------|
| 1 | +4.48 | --- | --- | --- | +3.36 | --- | 5.58 | 4.24 | +2.38 | 2.72 | 7.09 | --- |
| 2 | --- | --- | --- | --- | +0.09 | --- | 5.65 | 4.16 | +2.24 | 2.80 | 7.28 | --- |
| 3 | --- | --- | --- | --- | .15 | --- | 5.72 | 3.90 | --- | 2.86 | 7.47 | --- |
| 4 | --- | --- | --- | --- | .33 | --- | 5.78 | 3.60 | --- | 2.89 | 7.66 | --- |
| 5 | +2.28 | --- | --- | --- | .33 | --- | 5.83 | 3.48 | --- | 2.94 | 7.22 | --- |
| 6 | .51 | --- | --- | --- | .33 | --- | 5.96 | 3.41 | --- | 2.97 | 6.56 | --- |
| 7 | +1.58 | --- | --- | --- | 1.67 | --- | 6.06 | 3.33 | --- | 3.06 | 6.12 | --- |
| 8 | +2.62 | --- | 1.06 | --- | 1.92 | --- | 6.21 | 3.30 | --- | 3.18 | 6.60 | --- |
| 9 | +2.61 | --- | 1.16 | --- | 2.17 | --- | 6.30 | 3.30 | --- | 3.25 | 6.92 | --- |
| 10 | +2.47 | --- | 1.33 | --- | --- | --- | 6.45 | 3.24 | --- | 3.29 | 7.18 | +5.0 |
| 11 | +3.75 | --- | 1.53 | --- | --- | --- | 6.58 | 3.16 | --- | 3.35 | 7.47 | +6.0 |
| 12 | --- | --- | 1.64 | --- | --- | --- | 6.75 | 3.11 | --- | 3.37 | 7.77 | +3.5 |
| 13 | --- | --- | 1.91 | --- | --- | --- | 6.86 | 3.11 | --- | 3.34 | 7.72 | .03 |
| 14 | --- | --- | --- | --- | --- | --- | 6.56 | 3.13 | --- | 3.48 | 7.80 | --- |
| 15 | --- | --- | --- | --- | --- | --- | 5.99 | 3.14 | --- | 3.60 | 6.80 | --- |
| 16 | --- | --- | --- | --- | --- | --- | 4.91 | 3.17 | --- | 3.64 | 4.98 | --- |
| 17 | --- | --- | --- | --- | --- | --- | 4.23 | 3.20 | --- | 3.61 | 2.05 | --- |
| 18 | --- | --- | --- | --- | --- | --- | 4.13 | 3.22 | --- | 3.65 | 1.49 | --- |
| 19 | --- | --- | --- | --- | --- | --- | 4.17 | 3.20 | --- | 3.73 | 1.57 | --- |
| 20 | --- | --- | --- | --- | --- | --- | 4.28 | 3.14 | --- | 3.76 | 1.87 | --- |
| 21 | --- | --- | --- | --- | --- | --- | 4.37 | 3.06 | --- | 3.80 | --- | --- |
| 22 | --- | --- | --- | --- | 4.24 | --- | 4.46 | 2.98 | --- | 3.82 | 2.77 | --- |
| 23 | --- | --- | --- | --- | --- | --- | 4.56 | 2.94 | --- | 3.90 | .47 | --- |
| 24 | --- | --- | --- | --- | --- | 6.34 | 4.66 | 2.86 | --- | 4.49 | +2.26 | --- |
| 25 | --- | --- | --- | --- | --- | 6.43 | 4.54 | 2.31 | --- | 5.04 | +3.30 | --- |
| 26 | --- | --- | --- | --- | --- | 6.53 | 4.42 | 1.95 | --- | 5.49 | +0.02 | --- |
| 27 | --- | --- | --- | --- | --- | 6.65 | 4.41 | 1.67 | --- | 5.87 | .04 | .47 |
| 28 | --- | --- | --- | 5.21 | --- | 6.20 | 4.41 | .23 | --- | 6.22 | --- | +5.1 |
| 29 | --- | --- | --- | 3.04 | --- | 5.86 | 4.42 | +7.6 | 2.35 | 6.48 | --- | +7.7 |
| 30 | --- | --- | --- | +3.2 | --- | 5.70 | 4.33 | +1.05 | 2.58 | 6.72 | --- | +5.4 |
| 31 | --- | --- | --- | +2.8 | --- | 5.60 | --- | +2.27 | --- | 6.94 | --- | --- |
| MEAN | +1.66 | --- | 1.44 | 1.91 | 1.07 | 6.16 | 5.29 | 2.63 | .08 | 4.01 | 4.70 | +3.5 |

WTR YR 1993 MEAN 3.30 HIGHEST +4.00 OCT. 12, 1992 LOWEST 7.84 AUG. 12-13, 1993

+ Above land-surface datum.



GROUND-WATER LEVELS

RIO GUANAJIBO BASIN

180628067075801. Local number, CR-TW-2B.

LOCATION.--Lat 18°06'28", long 67°07'58", Hydrologic Unit 21010003, 1.56 mi northeast of Cabo Rojo plaza, 0.33 mi northwest of Hacienda La Ratina, and 1.94 mi southeast of Escuela Sabana Alta. Owner: U.S. Geological Survey, WRD, Name: CR-TW-2B.

AQUIFER.--Sand and clay.

WELL CHARACTERISTICS.--Drilled unused water-table well, diameter 4 in (0.10 m), cased 4 in (0.10 m), 0-15 ft (0-4.57 m), screened 10-15 ft (3.05-4.57 m). Depth 15 ft (4.57 m).

INSTRUMENTATION.--Digital water level recorder--60-minute punch.

DATUM.--Elevation of land-surface datum is about 28.87 ft (8.80 m) above mean sea level, from topographic map.

Measuring point: Hole on shelter floor 6.10 ft (1.86 m) above land-surface datum.

REMARKS.--Observation well. Drilled on Mar. 10, 1992. Automatic digital recorder installed on June 3, 1992.

PERIOD OF RECORD.--June 1992 to current year.

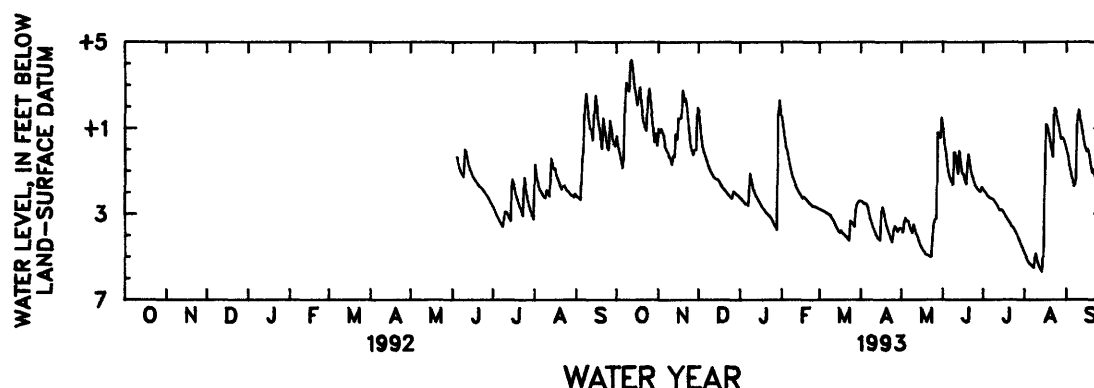
EXTREMES FOR PERIOD OF RECORD.--Highest water level recorded, +4.34 ft (+1.32 m) above land-surface datum, Oct. 12, 1992; lowest water level recorded, 5.72 ft (1.74 m) below land-surface datum, Aug. 14, 1993.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993
INSTANTANEOUS OBSERVATION AT 1200

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|------|-------|-------|-------|-------|-------|------|------|-------|-------|------|-------|-------|
| 1 | + .64 | + .99 | +1.82 | 2.27 | +1.57 | 2.78 | 2.41 | 3.69 | + .97 | 1.88 | 4.85 | .01 |
| 2 | +1.10 | + .80 | +1.22 | 2.33 | +1.08 | 2.80 | 2.45 | 3.87 | + .24 | 1.96 | 4.99 | .27 |
| 3 | .15 | + .98 | + .54 | 2.41 | + .54 | 2.83 | 2.52 | 3.34 | .07 | 2.04 | 5.14 | .80 |
| 4 | .47 | + .78 | + .06 | 2.48 | + .06 | 2.88 | 2.53 | 3.18 | .75 | 2.13 | 5.26 | 1.02 |
| 5 | .88 | + .63 | .14 | 2.55 | .10 | 2.91 | 2.55 | 3.34 | 1.11 | 2.21 | 5.34 | 1.35 |
| 6 | .34 | + .09 | .33 | 2.55 | .48 | 2.96 | 2.70 | 3.32 | 1.35 | 2.27 | 5.40 | 1.59 |
| 7 | +2.24 | .04 | .55 | 2.61 | .84 | 3.00 | 3.01 | 3.56 | 1.52 | 2.31 | 5.46 | 1.74 |
| 8 | +3.14 | .16 | .77 | 1.10 | 1.11 | 3.03 | 3.27 | 3.76 | 1.64 | 2.33 | 5.51 | 1.33 |
| 9 | +2.89 | .36 | .92 | 1.41 | 1.34 | 3.07 | 3.46 | 3.90 | .11 | 2.39 | 4.84 | +1.09 |
| 10 | +2.69 | .46 | 1.07 | 1.68 | 1.52 | 3.18 | 3.67 | 3.49 | .16 | 2.47 | 5.04 | +1.86 |
| 11 | +4.12 | .70 | 1.17 | 1.90 | 1.68 | 3.31 | 3.82 | 3.74 | .78 | 2.57 | 5.30 | +1.57 |
| 12 | +4.17 | .29 | 1.29 | 2.07 | 1.82 | 3.44 | 3.98 | 3.94 | 1.15 | 2.68 | 5.47 | +1.23 |
| 13 | +3.68 | .33 | 1.36 | 2.20 | 1.94 | 3.57 | 4.12 | 4.09 | .04 | 2.83 | 5.60 | + .84 |
| 14 | +2.87 | + .73 | 1.39 | 2.32 | 2.05 | 3.69 | 4.17 | 4.28 | .70 | 2.84 | 5.71 | + .38 |
| 15 | +2.63 | + .45 | 1.40 | 2.43 | 2.15 | 3.80 | 4.23 | 4.46 | 1.12 | 2.83 | 4.52 | + .08 |
| 16 | +2.05 | +1.49 | 1.50 | 2.54 | 2.27 | 3.87 | 2.97 | 4.59 | 1.15 | 2.91 | .55 | .10 |
| 17 | +2.42 | +1.45 | 1.61 | 2.66 | 2.21 | 3.78 | 2.68 | 4.71 | 1.44 | 3.03 | +1.20 | .01 |
| 18 | +2.91 | +1.49 | 1.70 | 2.76 | 2.27 | 3.89 | 2.96 | 4.79 | 1.61 | 3.15 | +1.08 | .32 |
| 19 | +2.20 | +2.78 | 1.79 | 2.84 | 2.34 | 3.96 | 3.34 | 4.89 | .72 | 3.24 | + .73 | .80 |
| 20 | +1.66 | +2.23 | 1.86 | 2.93 | 2.41 | 4.02 | 3.60 | 4.91 | .22 | 3.34 | + .34 | 1.10 |
| 21 | +1.25 | +2.40 | 1.94 | 3.00 | 2.49 | 4.09 | 3.78 | 4.93 | .81 | 3.45 | .03 | .94 |
| 22 | +1.03 | +1.95 | 2.04 | 3.08 | 2.55 | 4.17 | 3.97 | 4.97 | 1.13 | 3.57 | .39 | 1.28 |
| 23 | + .88 | +1.42 | 2.12 | 3.13 | 2.60 | 4.24 | 4.17 | 5.01 | 1.34 | 3.63 | +1.95 | .77 |
| 24 | +2.42 | + .83 | 2.18 | 3.21 | 2.66 | 3.31 | 4.34 | 4.14 | 1.55 | 3.73 | +1.85 | + .82 |
| 25 | +2.85 | +1.16 | 2.26 | 3.33 | 2.66 | 3.39 | 3.78 | 3.43 | 1.69 | 3.84 | +1.52 | + .49 |
| 26 | +2.20 | .07 | 2.27 | 3.47 | 2.68 | 3.48 | 3.55 | 3.28 | 1.78 | 3.96 | +1.18 | + .08 |
| 27 | +1.57 | .24 | 1.93 | 3.60 | 2.71 | 3.59 | 3.64 | 3.20 | 1.87 | 4.10 | + .80 | +1.07 |
| 28 | +1.01 | .01 | 2.00 | 3.75 | 2.75 | 2.79 | 3.84 | + .82 | 1.95 | 4.27 | + .44 | +1.92 |
| 29 | + .32 | .00 | 2.10 | +1.66 | --- | 2.54 | 3.71 | + .73 | 1.98 | 4.43 | + .54 | +1.97 |
| 30 | + .75 | +1.98 | 2.13 | +2.31 | --- | 2.44 | 3.67 | + .54 | 1.75 | 4.57 | + .45 | +1.61 |
| 31 | +1.16 | --- | 2.20 | +1.61 | --- | 2.40 | --- | +1.50 | --- | 4.73 | + .22 | --- |
| MEAN | +1.71 | + .70 | 1.24 | 2.16 | 1.58 | 3.33 | 3.43 | 3.39 | 1.01 | 3.09 | 2.16 | + .05 |

WTR YR 1993 MEAN 1.59 HIGHEST +4.34 OCT. 12, 1992 LOWEST 5.72 AUG. 14, 1993

+ Above land-surface datum.



GROUND-WATER LEVELS

RIO GUANAJIBO BASIN

180628067075802. Local number, CR-TW-2C.

LOCATION.--Lat 18°06'28", long 67°07'58", Hydrologic Unit 21010003, 1.56 mi northeast of Cabo Rojo plaza, 0.33 mi northwest of Hacienda La Ratina, and 1.94 mi southeast of Escuela Sabana Alta. Owner: U.S. Geological Survey, WRD, Name: CR-TW-2C.

AQUIFER.--Sand and clay.

WELL CHARACTERISTICS.--Drilled unused water-table well, diameter 4 in (0.10 m), cased 4 in (0.10 m), 0-65 ft (0-19.8 m), screened 60-65 ft (18.3-19.8 m). Depth 65 ft (19.8 m).

INSTRUMENTATION.--Digital water level recorder--60-minute punch.

DATUM.--Elevation of land-surface datum is about 28.9 ft (8.81 m) above mean sea level, from topographic map.

Measuring point: Hole on shelter floor 6.06 ft (1.85 m) above land-surface datum.

REMARKS.--Observation well. Drilled on Mar. 7, 1992. Automatic digital recorder installed on June 16, 1992.

PERIOD OF RECORD.--June 1992 to current year.

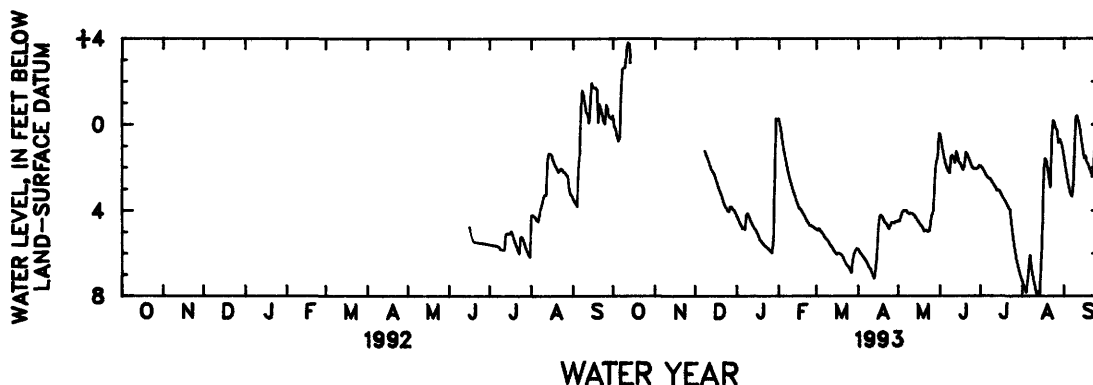
EXTREMES FOR PERIOD OF RECORD.--Highest water level recorded, +3.94 ft (+1.20 m) above land-surface datum, Oct. 12, 1992; lowest water level recorded, 8.03 ft (2.45 m) below land-surface datum, Aug. 12, 1993.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993
INSTANTANEOUS OBSERVATION AT 1200

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|------|-------|-----|------|------|-------|------|------|------|------|------|-------|-------|
| 1 | + .42 | --- | --- | 4.26 | + .28 | 4.87 | 5.80 | 4.47 | .42 | 1.92 | 7.30 | 1.48 |
| 2 | + .13 | --- | --- | 4.41 | .02 | 4.91 | 5.91 | 4.47 | .82 | 2.00 | 7.50 | 1.91 |
| 3 | .21 | --- | --- | 4.57 | .34 | 4.83 | 6.02 | 4.22 | 1.22 | 2.10 | 7.68 | 2.29 |
| 4 | .55 | --- | --- | 4.70 | .88 | 4.94 | 6.11 | 4.05 | 1.56 | 2.23 | 7.84 | 2.61 |
| 5 | .79 | --- | --- | 4.83 | 1.24 | 5.02 | 6.17 | 4.00 | 1.83 | 2.35 | 7.24 | 2.94 |
| 6 | .61 | --- | --- | 4.82 | 1.62 | 5.11 | 6.28 | 4.00 | 2.05 | 2.44 | 6.53 | 3.21 |
| 7 | +1.52 | --- | --- | 4.88 | 1.94 | 5.22 | 6.38 | 4.00 | 2.18 | 2.50 | 6.07 | 3.33 |
| 8 | +2.60 | --- | 1.23 | 4.17 | 2.21 | 5.31 | 6.49 | 4.10 | 2.25 | 2.51 | 6.73 | 2.85 |
| 9 | +2.65 | --- | 1.36 | 4.14 | 2.47 | 5.37 | 6.65 | 4.15 | 1.47 | 2.60 | 7.08 | 1.00 |
| 10 | +2.65 | --- | 1.54 | 4.29 | 2.68 | 5.46 | 6.73 | 4.12 | 1.43 | 2.70 | 7.40 | +3.38 |
| 11 | +3.66 | --- | 1.72 | 4.47 | 2.92 | 5.58 | 6.90 | 4.14 | 1.58 | 2.82 | 7.69 | +4.43 |
| 12 | +3.81 | --- | 1.92 | 4.60 | 3.12 | 5.67 | 7.06 | 4.17 | 1.78 | 2.90 | 7.96 | +5.16 |
| 13 | +3.73 | --- | 2.12 | 4.73 | 3.31 | 5.77 | 7.19 | 4.23 | 1.25 | 3.06 | 7.79 | .22 |
| 14 | +2.87 | --- | 2.20 | 4.84 | 3.52 | 5.88 | 6.68 | 4.33 | 1.51 | 3.03 | 7.99 | .73 |
| 15 | --- | --- | 2.30 | 4.91 | 3.69 | 5.97 | 6.06 | 4.44 | 1.76 | 3.07 | 6.69 | 1.17 |
| 16 | --- | --- | 2.47 | 5.06 | 3.87 | 6.03 | 4.83 | 4.53 | 1.82 | 3.18 | 4.76 | 1.58 |
| 17 | --- | --- | 2.67 | 5.22 | 3.91 | 6.00 | 4.27 | 4.63 | 1.97 | 3.32 | 2.12 | 1.45 |
| 18 | --- | --- | 2.88 | 5.37 | 4.00 | 6.00 | 4.20 | 4.72 | 2.10 | 3.43 | 1.56 | 1.77 |
| 19 | --- | --- | 3.07 | 5.45 | 4.11 | 6.04 | 4.29 | 4.80 | 1.93 | 3.53 | 1.70 | 1.84 |
| 20 | --- | --- | 3.21 | 5.53 | 4.23 | 6.10 | 4.44 | 4.96 | 1.27 | 3.64 | 2.04 | 2.08 |
| 21 | --- | --- | 3.41 | 5.60 | 4.38 | 6.23 | 4.55 | 4.92 | 1.39 | 3.75 | 2.48 | 2.17 |
| 22 | --- | --- | 3.62 | 5.66 | 4.49 | 6.37 | 4.61 | 4.93 | 1.55 | 3.89 | 2.92 | 2.43 |
| 23 | --- | --- | 3.77 | 5.72 | 4.58 | 6.50 | 4.73 | 4.98 | 1.69 | 3.96 | .52 | 2.25 |
| 24 | --- | --- | 3.88 | 5.78 | 4.70 | 6.59 | 4.84 | 4.93 | 1.87 | 4.64 | +2.22 | 1.14 |
| 25 | --- | --- | 4.01 | 5.85 | 4.70 | 6.65 | 4.69 | 4.47 | 2.00 | 5.21 | +1.12 | 1.15 |
| 26 | --- | --- | 4.04 | 5.91 | 4.74 | 6.77 | 4.55 | 4.17 | 2.06 | 5.65 | .16 | 1.50 |
| 27 | --- | --- | 3.80 | 5.98 | 4.78 | 6.91 | 4.55 | 4.00 | 2.06 | 6.03 | .23 | .67 |
| 28 | --- | --- | 3.83 | 5.40 | 4.83 | 6.27 | 4.57 | 2.54 | 2.06 | 6.35 | .87 | +3.37 |
| 29 | --- | --- | 3.94 | 2.58 | --- | 5.99 | 4.51 | 1.74 | 2.02 | 6.65 | .67 | +6.62 |
| 30 | --- | --- | 3.99 | -.30 | --- | 5.84 | 4.50 | 1.56 | 1.91 | 6.88 | .85 | +3.38 |
| 31 | --- | --- | 4.12 | -.19 | --- | 5.77 | --- | .40 | --- | 7.10 | 1.10 | --- |
| MEAN | +1.56 | --- | 2.96 | 4.62 | 3.11 | 5.81 | 5.49 | 4.04 | 1.69 | 3.72 | 4.23 | 1.38 |

WTR YR 1993 MEAN 3.50 HIGHEST +3.94 OCT. 12, 1992 LOWEST 8.03 AUG. 12, 1993

+ Above land-surface datum.



GROUND-WATER LEVELS

499

RIO GUANAJIBO BASIN

180643067080400. Local number, CR-TW-3.

LOCATION.--Lat 18°06'43", long 67°08'04", Hydrologic Unit 21010003, 1.75 mi northeast of Cabo Rojo plaza, 0.64 mi northwest of Hacienda La Ratina, and 1.58 mi southwest of Escuela Sabana Alta. Owner: U.S. Geological Survey, WRD, Name: CR-TW-3.

AQUIFER.--Sand and clay.

WELL CHARACTERISTICS.--Drilled unused water-table well, diameter 4 in (0.10 m), cased 4 in (0.10 m), 0-30 ft (0-9.14 m), screened 20-30 ft (6.10-9.14 m). Depth 30 ft (9.14 m).

INSTRUMENTATION.--Digital water level recorder--60-minute punch.

DATUM.--Elevation of land-surface datum is about 27.2 ft (8.29 m) above mean sea level, from topographic map.

Measuring point: Hole on shelter floor 5.56 ft (1.69 m) above land-surface datum.

REMARKS.--Observation well. Drilled on Mar. 12, 1992. Automatic digital recorder installed on July 10, 1992.

PERIOD OF RECORD.--March 1992 to current year.

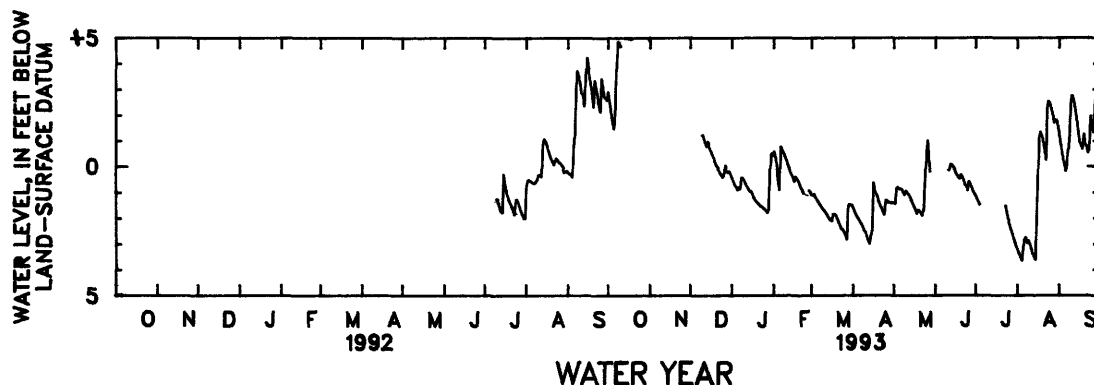
EXTREMES FOR PERIOD OF RECORD.--Highest water level recorded, +5.40 ft (+1.64 m) above land-surface datum, Oct. 11, 1992; lowest water level recorded, 3.65 ft (1.11 m) below land-surface datum, Aug. 4, 1993.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993
INSTANTANEOUS OBSERVATION AT 1200

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|------|-------|-----|-------|------|------|------|------|-------|------|------|-------|-------|
| 1 | +2.91 | --- | --- | .45 | +.57 | 1.10 | 1.63 | 1.41 | --- | 1.16 | 3.25 | +1.21 |
| 2 | +2.49 | --- | --- | .59 | +.34 | 1.11 | 1.77 | 1.44 | --- | 1.27 | 3.38 | +.82 |
| 3 | +2.06 | --- | --- | .74 | +.03 | 1.07 | 1.89 | .84 | --- | 1.38 | 3.51 | +.45 |
| 4 | +1.70 | --- | --- | .79 | .53 | 1.21 | 1.98 | .79 | --- | 1.49 | 3.64 | +.18 |
| 5 | +1.47 | --- | --- | .93 | .93 | 1.28 | 2.06 | .87 | --- | --- | 3.18 | .03 |
| 6 | +2.24 | --- | --- | .81 | +.79 | 1.36 | 2.16 | .86 | --- | --- | 2.84 | .20 |
| 7 | +3.94 | --- | --- | .88 | +.63 | 1.46 | 2.24 | .89 | --- | --- | 2.75 | +.54 |
| 8 | +4.87 | --- | --- | .43 | +.52 | 1.54 | 2.34 | 1.01 | --- | --- | 2.97 | +.76 |
| 9 | +4.82 | --- | --- | .45 | +.38 | 1.61 | 2.49 | 1.10 | --- | --- | 2.87 | +1.87 |
| 10 | +4.66 | --- | +1.22 | .55 | +.24 | 1.69 | 2.57 | .94 | --- | --- | 3.00 | +2.77 |
| 11 | --- | --- | +1.08 | .67 | +.06 | 1.76 | 2.73 | 1.02 | .14 | --- | 3.20 | +2.75 |
| 12 | --- | --- | +.91 | .78 | .06 | 1.84 | 2.89 | 1.09 | +.10 | --- | 3.40 | +2.51 |
| 13 | --- | --- | +.77 | .88 | .19 | 1.93 | 3.00 | 1.19 | +.06 | --- | 3.49 | +2.17 |
| 14 | --- | --- | +.99 | .96 | .32 | 2.03 | 2.67 | 1.31 | .03 | --- | 3.61 | +1.77 |
| 15 | --- | --- | +.69 | .96 | .41 | 2.08 | 2.48 | 1.44 | .11 | --- | 2.18 | +1.33 |
| 16 | --- | --- | +.59 | 1.08 | .58 | 2.11 | .62 | 1.57 | .25 | --- | .55 | +.93 |
| 17 | --- | --- | +.45 | 1.21 | .40 | 1.84 | .98 | 1.69 | .34 | --- | +1.24 | +.80 |
| 18 | --- | --- | +.34 | 1.31 | .48 | 1.84 | 1.07 | 1.81 | .41 | --- | +1.35 | +.67 |
| 19 | --- | --- | +.16 | 1.38 | .58 | 1.90 | 1.19 | 1.69 | .47 | --- | +1.19 | +1.28 |
| 20 | --- | --- | +.04 | 1.44 | .71 | 2.02 | 1.38 | 1.74 | .32 | --- | +.94 | +.85 |
| 21 | --- | --- | .04 | 1.48 | .84 | 2.15 | 1.53 | 1.79 | .43 | --- | +.61 | +.80 |
| 22 | --- | --- | .16 | 1.54 | .94 | 2.28 | 1.63 | 1.90 | .56 | --- | +.24 | +.53 |
| 23 | --- | --- | .27 | 1.56 | 1.03 | 2.41 | 1.76 | 1.67 | .71 | 1.55 | +2.29 | +.64 |
| 24 | --- | --- | .33 | 1.61 | --- | 2.45 | 1.88 | .65 | .77 | 1.78 | +2.56 | +1.99 |
| 25 | --- | --- | .43 | 1.66 | --- | 2.54 | 1.29 | +.54 | .92 | 2.04 | -2.49 | +1.72 |
| 26 | --- | --- | .35 | 1.71 | --- | 2.67 | 1.32 | +1.03 | .58 | 2.27 | +2.27 | +1.33 |
| 27 | --- | --- | +.05 | 1.78 | .94 | 2.83 | 1.40 | +.15 | .68 | 2.45 | +2.07 | +2.12 |
| 28 | --- | --- | .20 | 1.66 | 1.00 | 1.54 | 1.39 | .20 | .82 | 2.63 | +1.69 | +2.84 |
| 29 | --- | --- | .25 | .10 | --- | 1.46 | 1.42 | --- | .97 | 2.81 | +1.82 | +2.94 |
| 30 | --- | --- | .20 | +.52 | --- | 1.49 | 1.39 | --- | 1.06 | 2.96 | +1.81 | +2.72 |
| 31 | --- | --- | .32 | +.41 | --- | 1.49 | --- | --- | --- | 3.12 | +1.57 | --- |
| MEAN | +3.12 | --- | +.22 | .95 | .26 | 1.81 | 1.84 | 1.04 | .47 | 2.07 | .76 | +1.37 |

WTR YR 1993 MEAN .59 HIGHEST +5.40 OCT. 11, 1992 LOWEST 3.65 AUG. 4, 1993

+ Above land-surface datum.



GROUND-WATER LEVELS

RIO GUANAJIBO BASIN

180650067073700. Local number, CR-TW-4.

LOCATION.--Lat 18°06'50", long 67°07'37", Hydrologic Unit 21010003, 2.15 mi northeast of Cabo Rojo plaza, 0.68 mi northeast of Hacienda La Ratina, and 2.13 mi southeast of Escuela Sabana Alta. Owner: U.S. Geological Survey, WRD, Name: CR-TW-4.

AQUIFER.--Sand and clay.

WELL CHARACTERISTICS.--Drilled unused water-table well, diameter 4 in (0.10 m), cased 4 in (0.10 m), 0-28 ft (0-8.53 m), screened 15-25 ft (4.57-7.62 m). Depth 28 ft (8.53 m).

INSTRUMENTATION.--Digital water level recorder--60-minute punch.

DATUM.--Elevation of land-surface datum is about 37.2 ft (11.3 m) above mean sea level, from topographic map.

Measuring point: Hole on shelter floor 3.96 ft (1.21 m) above land-surface datum.

REMARKS.--Observation well. Drilled on Mar. 13, 1992. Automatic digital recorder installed on June 30, 1992.

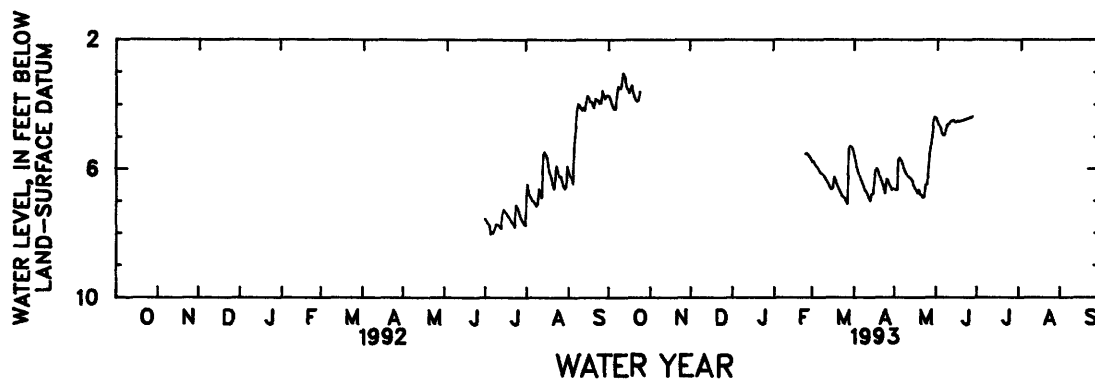
PERIOD OF RECORD.--June 1992 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level recorded, 2.99 ft (0.91 m) below land-surface datum, Oct. 12, 1992; lowest water level recorded, 8.05 ft (2.45 m) below land-surface datum, July 5, 1992.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993
INSTANTANEOUS OBSERVATION AT 1200

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|------|------|-----|-----|-----|------|------|------|------|------|-----|-----|------|
| 1 | 3.74 | --- | --- | --- | --- | 5.79 | 5.59 | 6.63 | 4.41 | --- | --- | --- |
| 2 | 3.84 | --- | --- | --- | --- | 5.78 | 5.76 | 6.65 | 4.52 | --- | --- | --- |
| 3 | 3.98 | --- | --- | --- | --- | 5.87 | 5.96 | 6.66 | 4.64 | --- | --- | --- |
| 4 | 4.07 | --- | --- | --- | --- | 5.93 | 6.10 | 5.70 | 4.73 | --- | --- | --- |
| 5 | 4.15 | --- | --- | --- | --- | 5.97 | 6.24 | 5.66 | 4.89 | --- | --- | --- |
| 6 | 4.15 | --- | --- | --- | --- | 6.04 | 6.36 | 5.75 | 4.95 | --- | --- | --- |
| 7 | 3.71 | --- | --- | --- | --- | 6.12 | 6.46 | 5.84 | 4.95 | --- | --- | --- |
| 8 | 3.44 | --- | --- | --- | --- | 6.15 | 6.57 | 5.99 | 4.77 | --- | --- | --- |
| 9 | 3.50 | --- | --- | --- | --- | 6.19 | 6.67 | 6.08 | 4.64 | --- | --- | --- |
| 10 | 3.50 | --- | --- | --- | --- | 6.27 | 6.73 | 6.17 | 4.60 | --- | --- | --- |
| 11 | 3.14 | --- | --- | --- | --- | 6.34 | 6.82 | 6.24 | 4.58 | --- | --- | --- |
| 12 | 3.03 | --- | --- | --- | --- | 6.42 | 6.91 | 6.28 | 4.51 | --- | --- | --- |
| 13 | 3.18 | --- | --- | --- | --- | 6.49 | 7.00 | 6.31 | 4.49 | --- | --- | --- |
| 14 | 3.45 | --- | --- | --- | --- | 6.58 | 6.77 | 6.37 | 4.48 | --- | --- | --- |
| 15 | 3.53 | --- | --- | --- | --- | 6.64 | 6.78 | 6.52 | 4.54 | --- | --- | --- |
| 16 | 3.63 | --- | --- | --- | --- | 6.60 | 6.31 | 6.60 | 4.53 | --- | --- | --- |
| 17 | 3.52 | --- | --- | --- | --- | 6.24 | 6.04 | 6.66 | 4.51 | --- | --- | --- |
| 18 | 3.41 | --- | --- | --- | --- | 6.35 | 5.99 | 6.75 | 4.52 | --- | --- | --- |
| 19 | 3.65 | --- | --- | --- | --- | 6.47 | 6.08 | 6.65 | 4.51 | --- | --- | --- |
| 20 | 3.77 | --- | --- | --- | --- | 6.57 | 6.24 | 6.80 | 4.49 | --- | --- | --- |
| 21 | 3.86 | --- | --- | --- | --- | 6.66 | 6.37 | 6.82 | 4.48 | --- | --- | --- |
| 22 | 3.90 | --- | --- | --- | --- | 6.74 | 6.49 | 6.89 | 4.46 | --- | --- | --- |
| 23 | 3.86 | --- | --- | --- | --- | 6.85 | 6.64 | 6.88 | 4.45 | --- | --- | --- |
| 24 | 3.60 | --- | --- | --- | 5.54 | 6.88 | 6.76 | 6.49 | 4.43 | --- | --- | --- |
| 25 | --- | --- | --- | --- | 5.51 | 6.92 | 6.31 | 6.49 | 4.42 | --- | --- | --- |
| 26 | --- | --- | --- | --- | 5.58 | 7.01 | 6.35 | 6.18 | 4.40 | --- | --- | --- |
| 27 | --- | --- | --- | --- | 5.63 | 7.09 | 6.48 | 5.50 | 4.38 | --- | --- | --- |
| 28 | --- | --- | --- | --- | 5.70 | 5.35 | 6.56 | 5.25 | 4.37 | --- | --- | --- |
| 29 | --- | --- | --- | --- | --- | 5.28 | 6.65 | 4.94 | --- | --- | --- | 3.82 |
| 30 | --- | --- | --- | --- | --- | 5.32 | 6.62 | 4.48 | --- | --- | --- | 3.94 |
| 31 | --- | --- | --- | --- | --- | 5.41 | --- | 4.38 | --- | --- | --- | --- |
| MEAN | 3.65 | --- | --- | --- | 5.59 | 6.27 | 6.42 | 6.15 | 4.56 | --- | --- | 3.88 |

WTR YR 1993 MEAN 5.49 HIGHEST 2.99 OCT. 12, 1992 LOWEST 7.09 MAR. 27, 1993



GROUND-WATER LEVELS

RIO GUANAJIBO BASIN

180557067083100. Local number, CR-TW-5.

LOCATION.--Lat 18°05'57", long 67°08'31", Hydrologic Unit 21010003, 0.75 mi northeast of Cabo Rojo plaza, 0.92 mi southeast of Hacienda La Ratina, and 1.83 mi southeast of Escuela Sabana Alta. Owner: U.S. Geological Survey, WRD, Name: CR-TW-5.

AQUIFER.--Sand and clay.

WELL CHARACTERISTICS.--Drilled unused water-table well, diameter 4 in (0.10 m), cased 4 in (0.10 m), 0-25 ft (0-7.62 m), screened 15-25 ft (4.57-7.62 m). Depth 25 ft (7.62 m).

INSTRUMENTATION.--Digital water level recorder--60-minute punch.

DATUM.--Elevation of land-surface datum is about 35.26 ft (10.7 m) above mean sea level, from topographic map.

Measuring point: Hole on shelter floor 3.88 ft (1.18 m) above land-surface datum.

REMARKS.--Observation well. Drilled on Mar. 17, 1992. Automatic digital recorder installed on July 16, 1992.

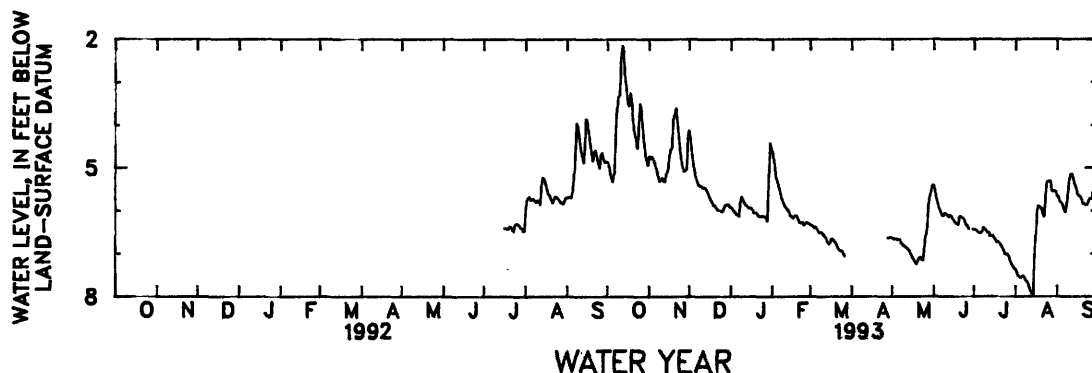
PERIOD OF RECORD.--July 1992 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level recorded, 2.12 ft (0.65 m) below land-surface datum, Oct. 12, 1992; lowest water level recorded, 7.99 ft (2.44 m) below land-surface datum, Aug. 13-14, 1993.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993
INSTANTANEOUS OBSERVATION AT 1200

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|------|------|------|------|------|------|------|------|------|------|------|------|------|
| 1 | 4.87 | 4.72 | 4.11 | 5.92 | 4.63 | 6.33 | --- | 6.63 | 5.41 | 6.44 | 7.37 | 5.65 |
| 2 | 4.98 | 4.78 | 4.37 | 5.95 | 4.87 | 6.34 | --- | 6.64 | 5.54 | 6.44 | 7.45 | 5.69 |
| 3 | 5.13 | 4.74 | 4.70 | 6.00 | 5.11 | 6.37 | --- | 6.66 | 5.72 | 6.47 | 7.52 | 5.79 |
| 4 | 5.23 | 4.80 | 4.96 | 6.04 | 5.26 | 6.40 | --- | 6.65 | 5.83 | 6.51 | 7.55 | 5.81 |
| 5 | 5.32 | 4.89 | 5.11 | 6.08 | 5.36 | 6.38 | --- | 6.67 | 5.96 | 6.51 | 7.56 | 5.86 |
| 6 | 5.12 | 5.01 | 5.21 | 6.10 | 5.48 | 6.42 | --- | 6.67 | 6.02 | 6.52 | 7.52 | 5.96 |
| 7 | 4.37 | 5.10 | 5.32 | 6.12 | 5.60 | 6.49 | --- | 6.67 | 6.10 | 6.47 | 7.53 | 6.02 |
| 8 | 3.61 | 5.20 | 5.39 | 5.81 | 5.72 | 6.51 | --- | 6.76 | 6.11 | 6.39 | 7.60 | 5.87 |
| 9 | 3.32 | 5.32 | 5.42 | 5.67 | 5.82 | 6.50 | --- | 6.79 | 6.05 | 6.44 | 7.64 | 5.57 |
| 10 | 3.30 | 5.27 | 5.43 | 5.74 | 5.89 | 6.53 | --- | 6.82 | 6.07 | 6.46 | 7.68 | 5.27 |
| 11 | 2.53 | 5.23 | 5.46 | 5.81 | 5.93 | 6.56 | --- | 6.85 | 6.10 | 6.51 | 7.78 | 5.14 |
| 12 | 2.14 | 5.31 | 5.46 | 5.87 | 5.97 | 6.60 | --- | 6.86 | 6.14 | 6.51 | 7.86 | 5.15 |
| 13 | 2.29 | 5.32 | 5.47 | 5.89 | 6.01 | 6.64 | --- | 6.90 | 6.10 | 6.59 | 7.93 | 5.26 |
| 14 | 2.85 | 5.12 | 5.52 | 5.93 | 6.11 | 6.73 | --- | 6.94 | 6.13 | 6.59 | 7.99 | 5.39 |
| 15 | 3.15 | 5.04 | 5.58 | 5.93 | 6.13 | 6.78 | --- | 7.01 | 6.19 | 6.58 | 7.07 | 5.47 |
| 16 | 3.51 | 4.74 | 5.68 | 5.94 | 6.17 | 6.75 | --- | 7.09 | 6.24 | 6.63 | 6.59 | 5.62 |
| 17 | 3.56 | 4.57 | 5.75 | 5.98 | 6.13 | 6.65 | --- | 7.14 | 6.28 | 6.68 | 5.97 | 5.65 |
| 18 | 3.24 | 4.52 | 5.80 | 6.05 | 6.11 | 6.66 | --- | 7.20 | 6.30 | 6.74 | 5.87 | 5.67 |
| 19 | 3.48 | 3.85 | 5.87 | 6.05 | 6.13 | 6.70 | --- | 7.24 | 6.32 | 6.72 | 5.90 | 5.73 |
| 20 | 3.89 | 3.77 | 5.88 | 6.05 | 6.20 | 6.74 | --- | 7.18 | 6.13 | 6.75 | 5.95 | 5.83 |
| 21 | 4.16 | 3.59 | 5.93 | 6.11 | 6.27 | 6.80 | --- | 7.11 | 6.13 | 6.79 | 6.07 | 5.84 |
| 22 | 4.32 | 3.85 | 5.97 | 6.12 | 6.28 | 6.89 | --- | 7.09 | 6.16 | 6.84 | 6.14 | 5.86 |
| 23 | 4.55 | 4.19 | 5.99 | 6.13 | 6.27 | 6.92 | --- | 7.14 | 6.18 | 6.92 | 5.76 | 5.86 |
| 24 | 4.17 | 4.56 | 5.99 | 6.12 | 6.33 | 6.93 | --- | 7.15 | 6.25 | 7.00 | 5.35 | 5.78 |
| 25 | 3.49 | 4.85 | 6.02 | 6.12 | 6.30 | 6.94 | --- | 6.88 | 6.33 | 7.01 | 5.31 | 5.71 |
| 26 | 3.65 | 5.01 | 6.00 | 6.14 | 6.27 | 7.01 | --- | 6.57 | 6.37 | 7.01 | 5.31 | 5.71 |
| 27 | 4.01 | 5.09 | 5.91 | 6.17 | 6.29 | 7.06 | --- | 6.37 | 6.42 | 7.06 | 5.31 | 5.71 |
| 28 | 4.40 | 5.06 | 5.86 | 6.23 | 6.30 | --- | 6.63 | 5.85 | --- | 7.17 | 5.55 | 5.40 |
| 29 | 4.72 | 5.02 | 5.86 | 5.46 | --- | --- | 6.62 | 5.64 | --- | 7.24 | 5.55 | 5.09 |
| 30 | 4.84 | 4.27 | 5.85 | 4.41 | --- | --- | 6.62 | 5.54 | 6.43 | 7.30 | 5.54 | 5.03 |
| 31 | 4.95 | --- | 5.90 | 4.55 | --- | --- | --- | 5.40 | --- | 7.35 | 5.56 | --- |
| MEAN | 3.97 | 4.76 | 5.54 | 5.89 | 5.89 | 6.65 | 6.62 | 6.71 | 6.11 | 6.73 | 6.64 | 5.61 |

WTR YR 1993 MEAN 5.86 HIGHEST 2.12 OCT. 12, 1992 LOWEST 7.99 AUG. 13, 14, 1993



GROUND-WATER LEVELS

RIO GUANAJIBO BASIN

180617067083300. Local number, CR-TW-6.

LOCATION.--Lat 18°06'17", long 67°08'33", Hydrologic Unit 21010003, 1.11 mi northeast of Cabo Rojo plaza, 1.27 mi northwest of Escuela Segunda Unidad Antonio Acarón Correa, and 1.50 southeast of Escuela Sabana Alta.

Owner: U.S. Geological Survey, WRD, Name: CR-TW-6.

AQUIFER.--Sand and clay.

WELL CHARACTERISTICS.--Drilled unused water-table well, diameter 4 in (0.10 m), cased 4 in (0.10 m), 0-30 ft (0-9.14 m), screened 20-30 ft (6.10-10.0 m). Depth 30 ft (10.0 m).

INSTRUMENTATION.--Digital water level recorder--60-minute punch.

DATUM.--Elevation of land-surface datum is about 32.9 ft (10.0 m) above mean sea level, from topographic map.

Measuring point: Hole on shelter floor 5.77 ft (1.76 m) above land-surface datum.

REMARKS.--Observation well. Drilled on Mar. 19, 1992. Automatic digital recorder installed on June 4, 1992.

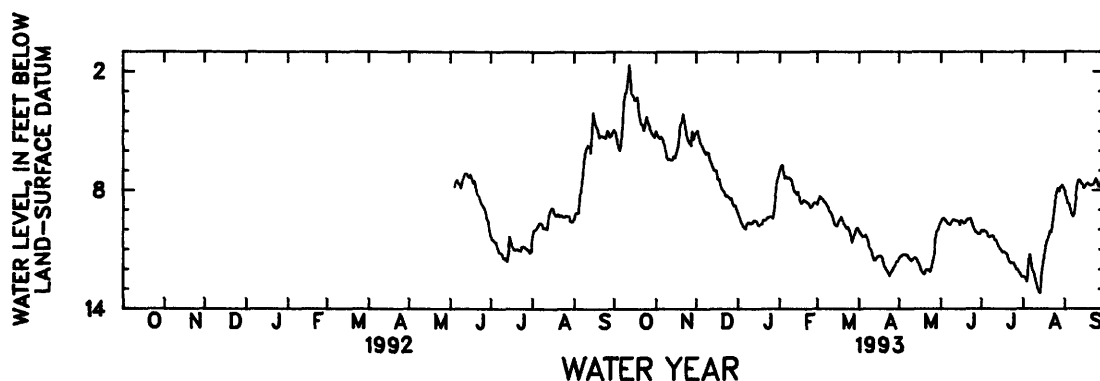
PERIOD OF RECORD.--June 1992 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level recorded, 1.44 ft (0.44 m) below land-surface datum, Oct. 12, 1992; lowest water level recorded, 13.2 ft (4.02 m) below land-surface datum, Aug. 13-14, 1993.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993
INSTANTANEOUS OBSERVATION AT 1200

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|------|------|------|------|------|------|-------|-------|-------|-------|-------|-------|------|
| 1 | 4.94 | 4.96 | 5.05 | 9.17 | 7.02 | 8.73 | 10.07 | 11.44 | 9.60 | 10.05 | 12.38 | 8.01 |
| 2 | 5.07 | 5.20 | 4.98 | 9.34 | 6.77 | 8.45 | 10.17 | 11.35 | 9.44 | 10.10 | 12.38 | 8.37 |
| 3 | 5.38 | 5.31 | 5.30 | 9.55 | 6.71 | 8.30 | 10.28 | 11.31 | 9.41 | 10.04 | 12.47 | 8.66 |
| 4 | 5.81 | 5.37 | 5.59 | 9.69 | 7.10 | 8.43 | 10.36 | 11.26 | 9.50 | 10.09 | 12.63 | 8.71 |
| 5 | 5.96 | 5.29 | 5.73 | 9.82 | 7.38 | 8.45 | 10.37 | 11.25 | 9.59 | 10.15 | 11.50 | 8.97 |
| 6 | 5.67 | 5.41 | 5.90 | 9.90 | 7.31 | 8.59 | 10.28 | 11.29 | 9.68 | 10.34 | 11.24 | 9.22 |
| 7 | 5.00 | 5.63 | 6.03 | 9.95 | 7.38 | 8.64 | 10.41 | 11.28 | 9.72 | 10.38 | 11.70 | 9.34 |
| 8 | 3.51 | 6.00 | 6.14 | 9.69 | 7.36 | 8.76 | 10.59 | 11.41 | 9.74 | 10.33 | 12.07 | 9.19 |
| 9 | 3.08 | 6.36 | 6.06 | 9.63 | 7.40 | 8.87 | 10.95 | 11.51 | 9.59 | 10.31 | 12.19 | 8.48 |
| 10 | 3.07 | 6.43 | 6.12 | 9.69 | 7.50 | 9.07 | 11.05 | 11.57 | 9.49 | 10.33 | 12.47 | 7.73 |
| 11 | 2.48 | 6.42 | 6.47 | 9.68 | 7.76 | 9.14 | 11.32 | 11.50 | 9.49 | 10.54 | 12.75 | 7.48 |
| 12 | 1.63 | 6.46 | 6.62 | 9.64 | 8.04 | 9.27 | 11.54 | 11.44 | 9.53 | 10.54 | 12.99 | 7.48 |
| 13 | 2.34 | 6.46 | 6.81 | 9.54 | 8.10 | 9.52 | 11.55 | 11.44 | 9.55 | 10.73 | 13.16 | 7.64 |
| 14 | 3.16 | 6.26 | 6.95 | 9.55 | 8.19 | 9.75 | 11.44 | 11.50 | 9.59 | 10.87 | 13.20 | 7.69 |
| 15 | 3.25 | 6.33 | 7.00 | 9.58 | 8.08 | 9.81 | 11.36 | 11.65 | 9.75 | 11.00 | 12.12 | 7.89 |
| 16 | 3.44 | 6.06 | 7.01 | 9.76 | 8.54 | 9.82 | 11.33 | 11.78 | 9.52 | 11.09 | 11.56 | 7.82 |
| 17 | 3.43 | 5.81 | 7.47 | 9.79 | 8.66 | 9.59 | 11.33 | 11.99 | 9.59 | 11.15 | 11.11 | 7.68 |
| 18 | 3.30 | 5.59 | 7.44 | 9.74 | 8.59 | 9.46 | 11.40 | 12.12 | 9.65 | 11.14 | 10.79 | 7.63 |
| 19 | 3.97 | 4.69 | 7.74 | 9.71 | 8.50 | 9.35 | 11.65 | 12.21 | 9.66 | 11.18 | 10.54 | 7.72 |
| 20 | 4.34 | 4.56 | 7.93 | 9.51 | 8.56 | 9.56 | 11.87 | 12.24 | 9.51 | 11.26 | 10.36 | 7.74 |
| 21 | 4.65 | 4.12 | 8.02 | 9.51 | 8.60 | 9.72 | 11.97 | 12.02 | 9.46 | 11.48 | 10.07 | 7.73 |
| 22 | 4.68 | 4.46 | 8.11 | 9.49 | 8.65 | 9.84 | 12.09 | 12.02 | 9.45 | 11.63 | 10.12 | 7.71 |
| 23 | 4.98 | 4.87 | 8.31 | 9.39 | 8.72 | 9.93 | 12.21 | 12.04 | 9.43 | 11.68 | 9.58 | 7.59 |
| 24 | 4.61 | 5.25 | 8.26 | 9.36 | 8.88 | 9.87 | 12.33 | 12.12 | 9.64 | 11.68 | 8.95 | 7.41 |
| 25 | 4.24 | 5.44 | 8.35 | 9.34 | 8.86 | 10.05 | 12.14 | 11.90 | 9.86 | 11.68 | 8.36 | 7.56 |
| 26 | 4.56 | 5.60 | 8.43 | 9.35 | 8.70 | 10.28 | 12.04 | 11.54 | 10.01 | 11.83 | 8.09 | 7.80 |
| 27 | 4.69 | 5.72 | 8.41 | 9.42 | 8.61 | 10.66 | 11.92 | 11.21 | 10.13 | 11.99 | 7.89 | 7.83 |
| 28 | 4.95 | 4.99 | 8.67 | 8.97 | 8.65 | 10.41 | 11.80 | 10.44 | 10.18 | 12.01 | 8.04 | 7.50 |
| 29 | 5.11 | 5.43 | 8.79 | 8.19 | --- | 10.20 | 11.61 | 10.08 | 10.23 | 12.15 | 7.81 | 7.25 |
| 30 | 5.20 | 5.12 | 8.78 | 7.52 | --- | 9.94 | 11.58 | 9.98 | 10.21 | 12.23 | 7.73 | 7.17 |
| 31 | 5.29 | --- | 8.99 | 7.30 | --- | 9.90 | --- | 9.71 | --- | 12.38 | 7.87 | --- |
| MEAN | 4.25 | 5.52 | 7.14 | 9.38 | 8.02 | 9.43 | 11.30 | 11.44 | 9.67 | 11.04 | 10.78 | 7.97 |

WTR YR 1993 MEAN 8.84 HIGHEST 1.44 OCT. 12, 1992 LOWEST 13.20 AUG. 13-14, 1993



GROUND-WATER LEVELS

RIO GUANAJIBO BASIN

180604067085100. Local number, CR-TW-7.

LOCATION.--Lat 18°06'04", long 67°08'51", Hydrologic Unit 21010003, 0.80 mi northwest of Cabo Rojo plaza, 1.29 mi northwest of Escuela Segunda Unidad Antonio Acarón Correa, and 1.56 southeast of Escuela Sabana Alta. Owner: U.S. Geological Survey, WRD, Name: CR-TW-7.

AQUIFER.--Sand and clay.

WELL CHARACTERISTICS.--Drilled unused water-table well, diameter 4 in (0.10 m), cased 4 in (0.10 m), 0-40 ft (0-12.2 m), screened 30-40 ft (9.14-12.2 m). Depth 40 ft (12.2 m).

INSTRUMENTATION.--Digital water level recorder--60-minute punch.

DATUM.--Elevation of land-surface datum is about 42.2 ft (12.9 m) above mean sea level, from topographic map.

Measuring point: Hole on shelter floor 5.69 ft (1.73 m) above land-surface datum.

REMARKS.--Observation well. Drilled on Mar. 19, 1992. Automatic digital recorder installed on June 4, 1992.

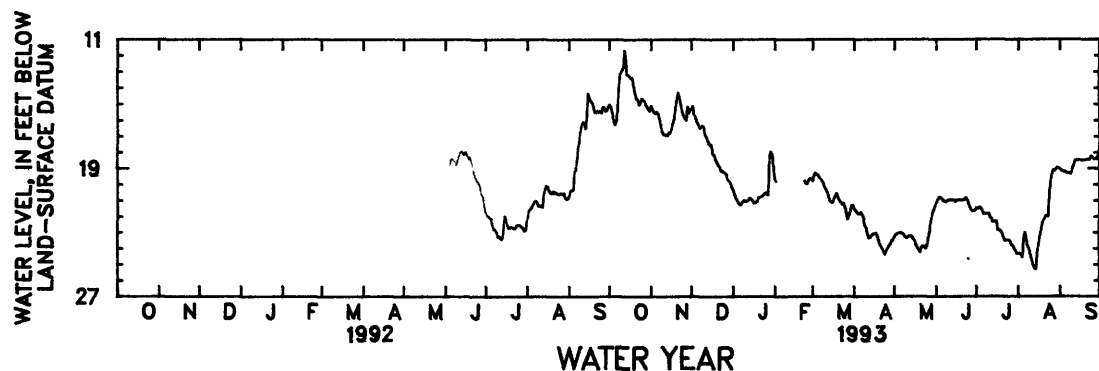
PERIOD OF RECORD.--June 1992 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level recorded, 11.15 ft (3.40 m) below land-surface datum, Oct. 12, 1992; lowest water level recorded, 25.30 ft (7.71 m) below land-surface datum, Aug. 13-14, 1993.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993
INSTANTANEOUS OBSERVATION AT 1200

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| 1 | 15.02 | 15.09 | 15.31 | 20.38 | 19.73 | 19.77 | 21.53 | 23.25 | 21.12 | 21.47 | 24.33 | 19.05 |
| 2 | 15.17 | 15.33 | 15.12 | 20.64 | 19.82 | 19.43 | 21.63 | 23.11 | 20.94 | 21.49 | 24.30 | 19.14 |
| 3 | 15.56 | 15.53 | 15.67 | 20.87 | --- | 19.26 | 21.77 | 23.06 | 20.81 | 21.42 | 24.36 | 19.18 |
| 4 | 16.08 | 15.58 | 15.90 | 21.03 | --- | 19.39 | 21.83 | 23.03 | 20.81 | 21.46 | 24.56 | 19.21 |
| 5 | 16.27 | 15.47 | 16.13 | 21.21 | --- | 19.40 | 21.83 | 23.00 | 20.89 | 21.61 | 23.34 | 19.24 |
| 6 | 16.01 | 15.59 | 16.29 | 21.27 | --- | 19.56 | 21.73 | 23.02 | 21.02 | 21.82 | 22.93 | 19.27 |
| 7 | 15.37 | 15.88 | 16.47 | 21.21 | --- | 19.65 | 21.87 | 23.03 | 21.05 | 21.82 | 23.40 | 19.30 |
| 8 | 13.96 | 16.27 | 16.42 | 21.06 | --- | 19.77 | 22.12 | 23.15 | 21.09 | 21.82 | 23.85 | 19.32 |
| 9 | 13.12 | 16.75 | 16.33 | 21.01 | --- | 19.91 | 22.59 | 23.26 | 21.01 | 21.82 | 24.02 | 19.36 |
| 10 | 12.99 | 16.90 | 16.42 | 21.05 | --- | 20.18 | 22.69 | 23.32 | 20.97 | 21.82 | 24.39 | 19.01 |
| 11 | 12.79 | 16.88 | 16.93 | 21.04 | --- | 20.30 | 23.09 | 23.26 | 20.97 | 22.08 | 24.74 | 18.78 |
| 12 | 11.65 | 16.95 | 17.08 | 20.99 | --- | 20.51 | 23.33 | 23.20 | 20.97 | 22.13 | 25.05 | 18.51 |
| 13 | 12.32 | 16.95 | 17.32 | 20.84 | --- | 20.73 | 23.29 | 23.17 | 20.97 | 22.31 | 25.26 | 18.50 |
| 14 | 13.21 | 16.74 | 17.47 | 20.90 | --- | 21.04 | 23.17 | 23.25 | 20.97 | 22.31 | 25.30 | 18.49 |
| 15 | 13.20 | 16.79 | 17.55 | 20.97 | --- | 21.13 | 23.08 | 23.38 | 21.08 | 22.31 | 24.18 | 18.48 |
| 16 | 13.29 | 16.52 | 17.56 | 21.14 | --- | 21.12 | 23.06 | 23.53 | 20.98 | 22.31 | 23.76 | 18.48 |
| 17 | 13.42 | 16.20 | 18.17 | 21.16 | --- | 20.86 | 23.02 | 23.81 | 20.97 | 22.86 | 23.19 | 18.48 |
| 18 | 13.37 | 15.92 | 18.16 | 21.09 | --- | 20.72 | 23.18 | 23.97 | 20.96 | 22.86 | 22.79 | 18.47 |
| 19 | 13.97 | 15.21 | 18.47 | 21.03 | --- | 20.55 | 23.46 | 24.09 | 20.97 | 22.92 | 22.35 | 18.46 |
| 20 | 14.39 | 14.77 | 18.66 | 20.79 | --- | 20.82 | 23.74 | 24.21 | 20.97 | 23.05 | 22.16 | 18.45 |
| 21 | 14.71 | 14.27 | 18.81 | 20.79 | --- | 20.98 | 23.88 | 23.90 | 20.95 | 23.30 | 21.97 | 18.44 |
| 22 | 14.72 | 14.59 | 18.92 | 20.74 | --- | 21.13 | 24.03 | 23.85 | 20.92 | 23.49 | 21.97 | 18.44 |
| 23 | 15.09 | 15.00 | 19.17 | 20.69 | 19.77 | 21.25 | 24.20 | 23.90 | 20.80 | 23.48 | 21.97 | 18.43 |
| 24 | 14.92 | 15.46 | 19.18 | 20.59 | 19.95 | 21.17 | 24.36 | 24.00 | 20.98 | 23.48 | 20.45 | 18.22 |
| 25 | 14.62 | 15.70 | 19.23 | 20.52 | 19.95 | 21.41 | 24.13 | 23.81 | 21.25 | 23.48 | 19.70 | 18.32 |
| 26 | 14.78 | 15.90 | 19.31 | 20.63 | 19.74 | 21.77 | 23.98 | 23.34 | 21.45 | 23.56 | 19.30 | 18.40 |
| 27 | 14.83 | 15.99 | 19.38 | 20.65 | 19.63 | 22.22 | 23.83 | 22.99 | 21.60 | 23.82 | 19.07 | 18.39 |
| 28 | 15.07 | 15.14 | 19.72 | 18.22 | 19.68 | 21.99 | 23.74 | 22.28 | 21.67 | 23.82 | 19.16 | 18.39 |
| 29 | 15.20 | 15.59 | 19.82 | 17.95 | --- | 21.73 | 23.51 | 21.78 | 21.67 | 24.03 | 19.03 | 18.23 |
| 30 | 15.34 | 15.37 | 19.93 | 18.16 | --- | 21.32 | 23.44 | 21.60 | 21.61 | 24.15 | 18.94 | 18.10 |
| 31 | 15.44 | --- | 20.22 | 18.95 | --- | 21.29 | --- | 21.35 | --- | 24.33 | 18.98 | --- |
| MEAN | 14.38 | 15.81 | 17.78 | 20.57 | 19.78 | 20.66 | 23.04 | 23.22 | 21.08 | 22.67 | 22.54 | 18.68 |

WTR YR 1993 MEAN 20.04 HIGHEST 11.15 OCT. 12, 1992 LOWEST 25.30 AUG. 13-14, 1993



GROUND-WATER LEVELS

RIO GUANAJIBO BASIN

180547067084800. Local number, CR-TW-8.

LOCATION.--Lat 18°05'47", long 67°08'48", Hydrologic Unit 21010003, 0.50 mi north of Cabo Rojo plaza, 1.10 mi northwest of Escuela Segunda Unidad Antonio Acarón Correa, and 1.85 southeast of Escuela Sabana Alta. Owner: U.S. Geological Survey, WRD, Name: CR-TW-8.

AQUIFER.--Sand and clay.

WELL CHARACTERISTICS.--Drilled unused water-table well, diameter 4 in (0.10 m), cased 4 in (0.10 m), 0-39 ft (0-11.7 m), screened 25-35 ft (7.62-10.7 m). Depth 39 ft (11.9 m).

INSTRUMENTATION.--Digital water level recorder--60-minute punch.

DATUM.--Elevation of land-surface datum is about 40.7 ft (12.4 m) above mean sea level, from topographic map.

Measuring point: Hole on shelter floor 3.94 ft (1.20 m) above land-surface datum.

REMARKS.--Observation well. Drilled on Mar. 25, 1992. Automatic digital recorder installed on July 16, 1992.

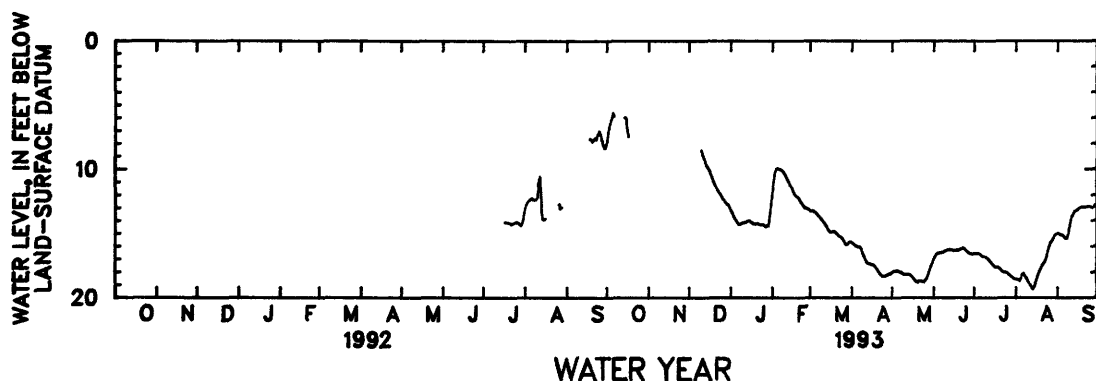
PERIOD OF RECORD.--July 1992 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level recorded, 5.60 ft (1.71 m) below land-surface datum, Oct. 5, 1992; lowest water level recorded, 19.31 ft (5.88 m) below land-surface datum, Aug. 14, 1993.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993
INSTANTANEOUS OBSERVATION AT 1200

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|------|------|-----|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| 1 | 7.84 | --- | --- | 13.20 | 11.75 | 13.25 | 15.70 | 18.03 | 17.02 | 16.56 | 18.54 | 14.98 |
| 2 | 6.88 | --- | --- | 13.40 | 10.98 | 13.28 | 15.79 | 17.94 | 16.79 | 16.56 | 18.55 | 14.99 |
| 3 | 6.45 | --- | --- | 13.63 | 10.23 | 13.22 | 15.88 | 17.91 | 16.62 | 16.54 | 18.60 | 15.08 |
| 4 | 6.11 | --- | --- | 13.82 | 9.95 | 13.32 | 15.97 | 17.89 | 16.53 | 16.54 | 18.68 | 15.09 |
| 5 | 5.60 | --- | --- | 14.00 | 9.96 | 13.38 | 16.01 | 17.88 | 16.50 | 16.58 | 18.48 | 15.15 |
| 6 | 5.87 | --- | --- | 14.16 | 10.01 | 13.48 | 16.04 | 17.92 | 16.48 | 16.68 | 18.11 | 15.25 |
| 7 | --- | --- | --- | 14.29 | 10.03 | 13.63 | 16.06 | 17.96 | 16.47 | 16.77 | 18.09 | 15.37 |
| 8 | --- | --- | --- | 14.28 | 10.12 | 13.73 | 16.18 | 18.03 | 16.46 | 16.81 | 18.28 | 15.38 |
| 9 | --- | --- | --- | 14.19 | 10.20 | 13.86 | 16.53 | 18.10 | 16.38 | 16.81 | 18.43 | 15.07 |
| 10 | --- | --- | 8.57 | 14.16 | 10.35 | 14.00 | 16.73 | 18.17 | 16.33 | 16.87 | 18.62 | 14.48 |
| 11 | --- | --- | 8.94 | 14.15 | 10.53 | 14.12 | 16.95 | 18.18 | 16.27 | 16.96 | 18.84 | 13.93 |
| 12 | --- | --- | 9.20 | 14.12 | 10.78 | 14.28 | 17.20 | 18.17 | 16.25 | 17.05 | 19.02 | 13.61 |
| 13 | --- | --- | 9.49 | 14.06 | 10.98 | 14.43 | 17.32 | 18.17 | 16.25 | 17.18 | 19.22 | 13.41 |
| 14 | 5.97 | --- | 9.75 | 14.01 | 11.23 | 14.66 | 17.34 | 18.19 | 16.25 | 17.31 | 19.31 | 13.25 |
| 15 | 6.05 | --- | 9.94 | 14.02 | 11.38 | 14.80 | 17.37 | 18.24 | 16.29 | 17.42 | 19.08 | 13.19 |
| 16 | 6.97 | --- | 10.11 | 14.11 | 11.67 | 14.88 | 17.41 | 18.35 | 16.32 | 17.52 | 18.82 | 13.11 |
| 17 | 7.46 | --- | 10.41 | 14.18 | 11.91 | 14.87 | 17.44 | 18.48 | 16.28 | 17.61 | 18.47 | 13.02 |
| 18 | --- | --- | 10.65 | 14.24 | 12.04 | 14.86 | 17.49 | 18.61 | 16.27 | 17.62 | 18.15 | 12.95 |
| 19 | --- | --- | 10.94 | 14.26 | 12.11 | 14.83 | 17.61 | 18.71 | 16.28 | 17.65 | 17.90 | 12.93 |
| 20 | --- | --- | 11.17 | 14.23 | 12.22 | 14.92 | 17.78 | 18.78 | 16.26 | 17.70 | 17.69 | 12.91 |
| 21 | --- | --- | 11.39 | 14.22 | 12.39 | 15.03 | 17.95 | 18.69 | 16.20 | 17.80 | 17.45 | 12.92 |
| 22 | --- | --- | 11.63 | 14.28 | 12.57 | 15.14 | 18.09 | 18.67 | 16.16 | 17.92 | 17.31 | 12.93 |
| 23 | --- | --- | 11.83 | 14.30 | 12.69 | 15.24 | 18.21 | 18.69 | 16.12 | 18.00 | 17.15 | 12.90 |
| 24 | --- | --- | 11.94 | 14.32 | 12.86 | 15.27 | 18.30 | 18.73 | 16.18 | 18.01 | 16.81 | 12.87 |
| 25 | --- | --- | 12.14 | 14.32 | 13.00 | 15.40 | 18.31 | 18.74 | 16.31 | 18.02 | 16.35 | 12.88 |
| 26 | --- | --- | 12.31 | 14.38 | 13.03 | 15.56 | 18.29 | 18.62 | 16.41 | 18.07 | 15.98 | 12.94 |
| 27 | --- | --- | 12.40 | 14.49 | 13.09 | 15.79 | 18.25 | 18.45 | 16.50 | 18.19 | 15.69 | 12.98 |
| 28 | --- | --- | 12.57 | 14.40 | 13.15 | 15.87 | 18.19 | 18.16 | 16.56 | 18.26 | 15.59 | 12.92 |
| 29 | --- | --- | 12.70 | 14.41 | --- | 15.81 | 18.12 | 17.82 | 16.58 | 18.36 | 15.38 | 12.78 |
| 30 | --- | --- | 12.77 | 13.56 | --- | 15.68 | 18.11 | 17.56 | 16.59 | 18.45 | 15.13 | 12.66 |
| 31 | --- | --- | 12.97 | 12.59 | --- | 15.64 | --- | 17.30 | --- | 18.53 | 15.03 | --- |
| MEAN | 6.52 | --- | 11.08 | 14.06 | 11.47 | 14.59 | 17.22 | 18.23 | 16.40 | 17.43 | 17.70 | 13.73 |

WTR YR 1993 MEAN 15.06 HIGHEST 5.60 OCT. 5, 1992 LOWEST 19.31 AUG. 14, 1993



GROUND-WATER LEVELS

505

RIO GUANAJIBO BASIN

180628067084300. Local number, CR-TW-9A.

LOCATION.--Lat 18°06'28", long 67°08'43", Hydrologic Unit 21010003, 1.29 mi north of Cabo Rojo plaza, 1.54 mi northwest of Escuela Segunda Unidad Antonio Acarón Correa, and 1.23 southeast of Escuela Sabana Alta. Owner: U.S. Geological Survey, WRD, Name: CR-TW-9A.

AQUIFER.--Sand and clay.

WELL CHARACTERISTICS.--Drilled unused water-table well, diameter 4 in (0.10 m), cased 4 in (0.10 m), 0-24 ft (0-7.32 m), screened 19-24 ft (5.79-7.32 m). Depth 24 ft (7.32 m).

INSTRUMENTATION.--Digital water level recorder--60-minute punch.

DATUM.--Elevation of land-surface datum is about 33.21 ft (10.1 m) above mean sea level, from topographic map.

Measuring point: Hole on shelter floor 3.92 ft (1.20 m) above land-surface datum.

REMARKS.--Observation well. Drilled on Mar. 25, 1992. Automatic digital recorder installed on July 8, 1992.

PERIOD OF RECORD.--July 1992 to current year.

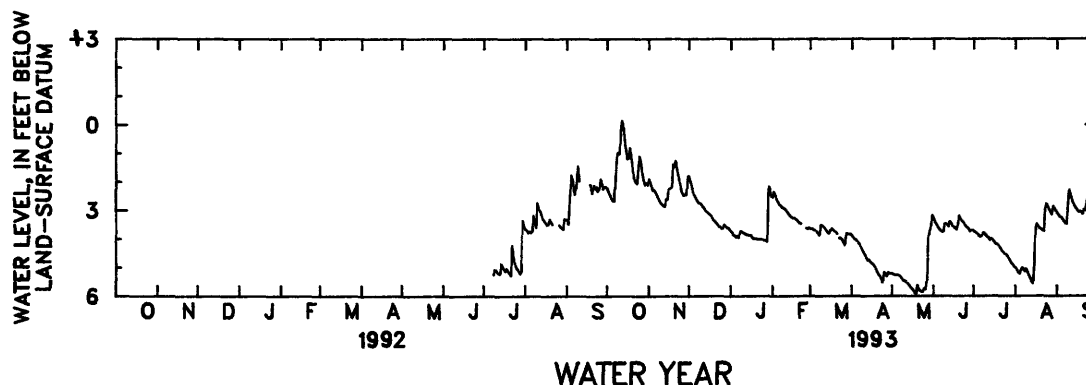
EXTREMES FOR PERIOD OF RECORD.--Highest water level recorded, +0.24 ft (+0.07 m) below land-surface datum, Oct. 12, 1992; lowest water level recorded, 5.99 ft (1.82 m) below land-surface datum, May 19-20, 1993.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993
INSTANTANEOUS OBSERVATION AT 1200

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|------|-------|------|------|------|------|------|------|------|------|------|------|------|
| 1 | 2.24 | 1.88 | 1.79 | 3.74 | 2.54 | 3.65 | 3.89 | 5.22 | 3.31 | 3.74 | 5.02 | 3.10 |
| 2 | 2.34 | 2.07 | 2.04 | 3.79 | 2.34 | 3.64 | 3.94 | 5.24 | 3.42 | 3.77 | 5.09 | 3.16 |
| 3 | 2.47 | 2.22 | 2.22 | 3.87 | 2.47 | 3.68 | 4.01 | 5.26 | 3.51 | 3.81 | 5.18 | 3.23 |
| 4 | 2.58 | 2.32 | 2.38 | 3.90 | 2.62 | 3.71 | 4.04 | 5.26 | 3.59 | 3.85 | 5.22 | 3.25 |
| 5 | 2.66 | 2.30 | 2.49 | 3.94 | 2.71 | 3.72 | 4.08 | 5.27 | 3.66 | 3.90 | 5.09 | 3.32 |
| 6 | 2.67 | 2.37 | 2.58 | 3.90 | 2.79 | 3.77 | 4.14 | 5.28 | 3.72 | 3.93 | 5.01 | 3.39 |
| 7 | 1.87 | 2.47 | 2.67 | 3.95 | 2.84 | 3.81 | 4.19 | 5.32 | 3.75 | 3.90 | 5.06 | 3.46 |
| 8 | 1.14 | 2.58 | 2.74 | 3.72 | 2.90 | 3.88 | 4.29 | 5.38 | 3.75 | 3.78 | 5.15 | 3.48 |
| 9 | .96 | 2.69 | 2.75 | 3.75 | 2.92 | 3.50 | 4.40 | 5.45 | 3.47 | 3.84 | 5.05 | 2.83 |
| 10 | 1.01 | 2.76 | 2.80 | 3.80 | 2.95 | 3.54 | 4.49 | 5.46 | 3.47 | 3.88 | 5.17 | 2.28 |
| 11 | .04 | 2.80 | 2.87 | 3.82 | 3.00 | 3.58 | 4.57 | 5.50 | 3.51 | 3.94 | 5.29 | 2.43 |
| 12 | + .17 | 2.85 | 2.92 | 3.84 | 3.07 | 3.65 | 4.67 | 5.53 | 3.57 | 3.96 | 5.38 | 2.61 |
| 13 | .11 | 2.87 | 3.00 | 3.86 | 3.13 | 3.72 | 4.76 | 5.56 | 3.39 | 4.05 | 5.48 | 2.76 |
| 14 | .62 | 2.58 | 3.05 | 3.87 | 3.20 | 3.79 | 4.74 | 5.62 | 3.47 | 4.00 | 5.56 | 2.86 |
| 15 | .84 | 2.62 | 3.09 | 3.87 | 3.24 | 3.81 | 4.81 | 5.69 | 3.56 | 4.04 | 4.92 | 2.94 |
| 16 | 1.22 | 2.24 | 3.13 | 3.89 | 3.28 | 3.70 | 4.86 | 5.75 | 3.59 | 4.10 | 3.59 | 3.01 |
| 17 | 1.16 | 2.24 | 3.18 | 3.95 | 3.27 | 3.63 | 4.89 | 5.81 | 3.63 | 4.16 | 3.47 | 3.06 |
| 18 | .80 | 2.17 | 3.26 | 4.00 | 3.30 | 3.70 | 4.95 | 5.88 | 3.66 | 4.20 | 3.57 | 3.04 |
| 19 | 1.20 | 1.38 | 3.34 | 4.00 | 3.35 | 3.73 | 5.06 | 5.92 | 3.46 | 4.20 | 3.64 | 3.08 |
| 20 | 1.64 | 1.50 | 3.39 | 4.00 | 3.40 | 3.76 | 5.16 | 5.59 | 3.17 | 4.27 | 3.66 | 3.13 |
| 21 | 1.92 | 1.26 | 3.44 | 4.02 | 3.45 | 3.83 | 5.25 | 5.76 | 3.30 | 4.33 | 3.71 | 2.96 |
| 22 | 2.01 | 1.56 | 3.51 | 4.02 | 3.47 | --- | 5.31 | 5.81 | 3.37 | 4.43 | 3.73 | 3.00 |
| 23 | 2.06 | 1.80 | 3.57 | 4.02 | --- | 3.98 | 5.40 | 5.85 | 3.42 | 4.47 | 2.95 | 2.70 |
| 24 | 1.58 | 2.08 | 3.59 | 4.03 | --- | 3.98 | 5.51 | 5.85 | 3.50 | 4.54 | 2.75 | 2.54 |
| 25 | 1.08 | 2.27 | 3.65 | 4.04 | --- | 4.04 | 5.14 | 5.73 | 3.56 | 4.55 | 2.85 | 2.71 |
| 26 | 1.32 | 2.40 | 3.62 | 4.06 | 3.63 | 4.14 | 5.23 | 5.75 | 3.61 | 4.61 | 2.97 | 2.81 |
| 27 | 1.72 | 2.48 | 3.50 | 4.07 | 3.65 | 4.22 | 5.30 | 5.43 | 3.65 | 4.68 | 3.05 | 2.63 |
| 28 | 1.97 | 2.45 | 3.56 | 4.10 | 3.61 | 3.79 | 5.16 | 3.95 | 3.74 | 4.77 | 3.14 | 2.28 |
| 29 | 2.14 | 2.45 | 3.61 | 2.16 | --- | 3.84 | 5.20 | 3.69 | 3.70 | 4.85 | 2.85 | 2.09 |
| 30 | 2.03 | 1.79 | 3.61 | 2.23 | --- | 3.84 | 5.21 | 3.50 | 3.70 | 4.91 | 2.94 | 2.30 |
| 31 | 2.12 | --- | 3.68 | 2.52 | --- | 3.83 | --- | 3.16 | --- | 4.98 | 3.02 | --- |
| MEAN | 1.53 | 2.25 | 3.07 | 3.77 | 3.09 | 3.78 | 4.75 | 5.31 | 3.54 | 4.21 | 4.18 | 2.88 |

WTR YR 1993 MEAN 3.54 HIGHEST +0.24 OCT. 12, 1992 LOWEST 5.99 MAY 19-20, 1993

+ Above land-surface datum.



GROUND-WATER LEVELS

RIO GUANAJIBO BASIN

180547067073100. Local number, CR-TW-10.

LOCATION.--Lat 18°05'47", long 67°07'31", Hydrologic Unit 21010003, 1.46 mi northeast of Cabo Rojo plaza, 0.60 mi northeast of Escuela Segunda Unidad Antonio Acarón Correa, and 2.74 southeast of Escuela Sabana Alta. Owner: U.S. Geological Survey, WRD, Name: CR-TW-10.

AQUIFER.--Sand and clay.

WELL CHARACTERISTICS.--Drilled unused water-table well, diameter 4 in (0.10 m), cased 4 in (0.10 m), 0-40 ft (0-12.2 m), screened 30-40 ft (9.14-12.2 m). Depth 40 ft (12.2 m).

INSTRUMENTATION.--Digital water level recorder--60-minute punch.

DATUM.--Elevation of land-surface datum is about 36.4 ft (11.1 m) above mean sea level, from topographic map.

Measuring point: Hole on shelter floor 3.67 ft (1.12 m) above land-surface datum.

REMARKS.--Observation well. Drilled on May 21, 1992. Automatic digital recorder installed on July 6, 1992.

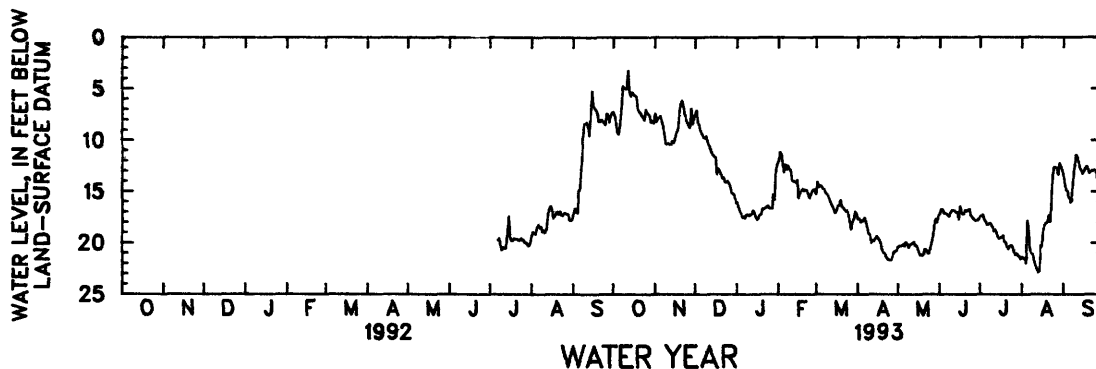
PERIOD OF RECORD.--July 1992 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level recorded, 2.98 ft (0.91 m) below land-surface datum, Oct. 12, 1992; lowest water level recorded, 22.9 ft (6.97 m) below land-surface datum, Aug. 13, 1993.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993
INSTANTANEOUS OBSERVATION AT 1200

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|------|------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| 1 | 7.28 | 7.39 | 7.54 | 16.07 | 12.02 | 15.26 | 17.70 | 20.37 | 17.15 | 17.42 | 21.38 | 13.40 |
| 2 | 7.69 | 8.24 | 7.09 | 16.61 | 11.10 | 14.04 | 17.66 | 20.31 | 16.73 | 17.40 | 21.50 | 14.31 |
| 3 | 8.42 | 7.82 | 8.32 | 16.92 | 11.37 | 14.63 | 18.00 | 20.31 | 16.78 | 17.30 | 21.54 | 14.93 |
| 4 | 9.33 | 7.81 | 8.50 | 17.16 | 12.41 | 14.43 | 17.83 | 20.26 | 17.12 | 17.74 | 22.00 | 15.00 |
| 5 | 9.42 | 7.67 | 9.09 | 17.55 | 13.18 | 14.53 | 17.85 | 20.14 | 17.14 | 17.94 | 17.78 | 15.62 |
| 6 | 8.44 | 8.22 | 9.37 | 17.46 | 12.35 | 14.77 | 17.55 | 20.35 | 17.21 | 18.24 | 18.79 | 16.08 |
| 7 | 6.86 | 8.63 | 9.72 | 17.61 | 12.84 | 14.80 | 17.94 | 19.94 | 17.36 | 18.22 | 20.55 | 15.91 |
| 8 | 4.73 | 9.52 | 9.80 | 17.29 | 12.49 | 15.16 | 18.46 | 20.16 | 17.43 | 18.09 | 21.07 | 14.30 |
| 9 | 4.94 | 10.41 | 9.67 | 17.25 | 12.83 | 15.29 | 19.11 | 20.47 | 17.05 | 18.23 | 21.15 | 12.75 |
| 10 | 5.04 | 10.45 | 10.10 | 17.36 | 12.96 | 15.43 | 19.21 | 20.20 | 16.85 | 18.44 | 21.78 | 11.39 |
| 11 | 4.99 | 10.33 | 10.56 | 17.26 | 13.99 | 15.99 | 20.03 | 20.10 | 16.87 | 18.86 | 22.26 | 11.64 |
| 12 | 3.20 | 10.45 | 10.88 | 17.18 | 14.02 | 16.25 | 19.83 | 20.02 | 16.90 | 18.71 | 22.57 | 12.16 |
| 13 | 5.57 | 10.43 | 11.25 | 16.84 | 14.09 | 16.51 | 19.78 | 19.91 | 17.03 | 18.99 | 22.88 | 12.74 |
| 14 | 5.79 | 10.10 | 11.49 | 17.16 | 14.17 | 16.78 | 19.59 | 20.28 | 17.09 | 19.41 | 22.72 | 12.95 |
| 15 | 5.39 | 10.26 | 11.62 | 17.48 | 13.88 | 17.12 | 19.37 | 20.30 | 17.72 | 19.60 | 20.22 | 13.28 |
| 16 | 5.62 | 9.74 | 11.72 | 17.70 | 15.69 | 16.89 | 19.54 | 20.66 | 16.41 | 19.53 | 20.40 | 13.03 |
| 17 | 5.72 | 9.21 | 13.39 | 17.55 | 15.20 | 16.39 | 19.75 | 21.16 | 17.09 | 19.45 | 18.70 | 12.75 |
| 18 | 5.85 | 8.98 | 12.71 | 17.25 | 14.96 | 16.31 | 20.07 | 21.15 | 17.23 | 19.28 | 18.28 | 12.55 |
| 19 | 6.99 | 7.09 | 13.01 | 17.22 | 14.79 | 15.84 | 20.66 | 21.22 | 17.18 | 19.91 | 18.05 | 12.84 |
| 20 | 7.24 | 6.44 | 13.34 | 16.67 | 14.93 | 16.57 | 20.98 | 21.03 | 16.80 | 19.96 | 17.97 | 13.21 |
| 21 | 7.39 | 6.11 | 13.73 | 16.70 | 14.87 | 16.61 | 21.05 | 20.63 | 16.94 | 20.42 | 17.32 | 13.10 |
| 22 | 7.65 | 6.80 | 13.64 | 16.60 | 14.94 | 16.81 | 21.40 | 20.71 | 16.82 | 20.60 | 18.02 | 12.97 |
| 23 | 7.79 | 7.53 | 14.10 | 16.51 | 15.23 | 16.95 | 21.61 | 21.01 | 16.72 | 20.32 | 15.94 | 12.99 |
| 24 | 8.05 | 8.12 | 14.11 | 16.43 | 15.61 | 16.89 | 21.65 | 21.01 | 17.34 | 20.26 | 13.55 | 12.91 |
| 25 | 6.99 | 8.29 | 14.00 | 16.65 | 15.30 | 17.34 | 21.69 | 20.60 | 17.48 | 20.37 | 12.61 | 13.06 |
| 26 | 7.47 | 8.59 | 14.23 | 16.65 | 14.95 | 18.03 | 21.64 | 19.95 | 17.65 | 20.81 | 12.69 | 13.76 |
| 27 | 7.44 | 8.78 | 14.51 | 16.65 | 14.85 | 18.76 | 21.12 | 19.41 | 17.76 | 21.19 | 12.73 | 13.64 |
| 28 | 7.68 | 6.89 | 15.17 | 15.24 | 14.96 | 17.95 | 20.90 | 18.30 | 17.86 | 21.03 | 13.39 | 13.25 |
| 29 | 8.28 | 8.48 | 15.23 | 15.83 | --- | 17.68 | 20.82 | 17.67 | 17.81 | 21.25 | 12.23 | 12.91 |
| 30 | 8.20 | 7.92 | 15.38 | 12.84 | --- | 16.94 | 20.78 | 17.99 | 17.68 | 21.34 | 12.62 | 12.72 |
| 31 | 8.37 | --- | 16.14 | 12.30 | --- | 17.17 | --- | 17.35 | --- | 21.59 | 12.92 | --- |
| MEAN | 6.90 | 8.56 | 11.92 | 16.64 | 13.93 | 16.26 | 19.79 | 20.10 | 17.17 | 19.42 | 18.25 | 13.40 |

WTR YR 1993 MEAN 15.21 HIGHEST 2.98 OCT. 12, 1992 LOWEST 22.88 AUG. 13, 1993



GROUND-WATER LEVELS

RIO CULEBRINAS BASIN

182442067091700. Local number, 200.

LOCATION.--Lat 18°24'42", long 67°09'17", Hydrologic Unit 21010002, 1.40 mi south of Aguadilla plaza, 3.04 mi northeast of Aguada plaza, and 0.20 mi north of Hwy 2 km 146.4. Owner: Carmelo Sánchez, Name: Aguadilla Cement Well.

AQUIFER.--Surficial deposits.

WELL CHARACTERISTICS.--Abandoned water-table industrial well, diameter 4 in (0.10 m), cased 0-20 ft (0-6.10 m), perforated 11-20 ft (3.35-6.10 m). Depth 20 ft (6.10 m).

INSTRUMENTATION.--Digital water level recorder--60-minute punch.

DATUM.--Elevation of land-surface datum is about 10 ft (3.05 m) above mean sea level, from topographic map.

Measuring point: Shelter floor on top of 4 in (0.10 m) casing, 3.25 ft (0.99 m) above land-surface datum.

REMARKS.--Recording observation well. Water levels affected by nearby pumping well.

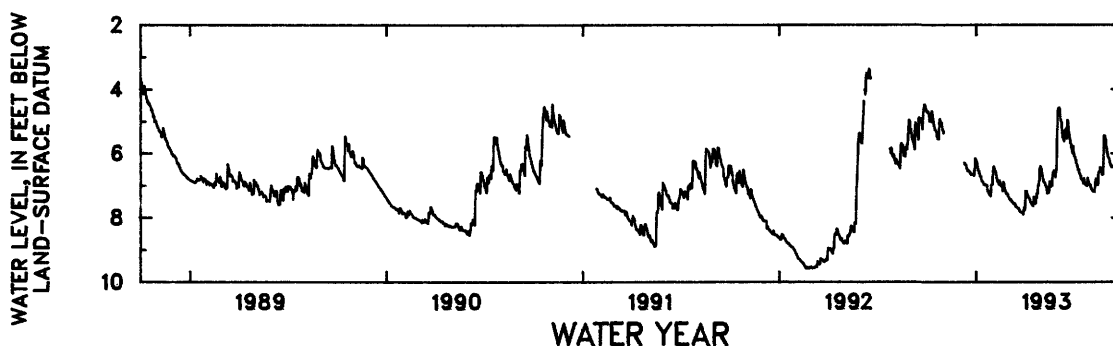
PERIOD OF RECORD.--October 1985 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level recorded, 2.24 ft (0.68 m) below land-surface datum, Aug 25, 1988; lowest water level recorded, 9.60 ft (2.93 m) below land-surface datum, Feb. 20, 1992.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993
INSTANTANEOUS OBSERVATION AT 1200

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|------|------|------|------|------|------|------|------|------|------|------|------|------|
| 1 | 4.69 | 5.36 | --- | 6.24 | 6.65 | 7.32 | 7.74 | 6.42 | 4.70 | 5.99 | 6.98 | 5.95 |
| 2 | 4.71 | --- | --- | 6.27 | 6.43 | 7.36 | 7.49 | 6.49 | 4.58 | 6.08 | 7.08 | 6.02 |
| 3 | 4.69 | --- | --- | 6.35 | 6.40 | 7.40 | 7.16 | 6.62 | 4.62 | 6.10 | 7.11 | 6.10 |
| 4 | 4.75 | --- | --- | 6.46 | 6.50 | 7.41 | 7.16 | 6.70 | 4.57 | 6.13 | 7.14 | 6.13 |
| 5 | 4.81 | --- | --- | 6.54 | 6.55 | 7.45 | 7.25 | 6.79 | 4.68 | 6.21 | 7.17 | 6.17 |
| 6 | 4.99 | --- | --- | 6.54 | 6.56 | 7.44 | 7.27 | 6.88 | 4.85 | 6.30 | 7.18 | 6.26 |
| 7 | 4.95 | --- | --- | 6.63 | 6.63 | 7.44 | 7.34 | 6.90 | 4.99 | 6.37 | 7.17 | 6.33 |
| 8 | 4.94 | --- | --- | 6.71 | 6.76 | 7.50 | 7.37 | 6.91 | 5.00 | 6.41 | 7.15 | 6.38 |
| 9 | 5.00 | --- | --- | 6.71 | 6.83 | 7.50 | 7.38 | 6.96 | 5.27 | 6.50 | 7.19 | 6.41 |
| 10 | 4.66 | --- | 6.29 | 6.72 | 6.88 | 7.53 | 7.42 | 7.01 | 5.42 | 6.49 | 6.93 | 6.43 |
| 11 | 4.79 | --- | 6.34 | 6.82 | 6.91 | 7.56 | 7.47 | 7.03 | 5.51 | 6.54 | 6.78 | 6.39 |
| 12 | 4.93 | --- | 6.35 | 6.86 | 6.96 | 7.57 | 7.52 | 7.14 | 5.53 | 6.63 | 6.87 | 6.42 |
| 13 | 4.99 | --- | 6.35 | 6.88 | 6.83 | 7.56 | 7.53 | 7.25 | 5.61 | 6.66 | 6.95 | 6.43 |
| 14 | 5.13 | --- | 6.45 | 6.91 | 6.90 | 7.56 | 7.58 | 7.15 | 5.28 | 6.71 | 6.95 | --- |
| 15 | 5.19 | --- | 6.48 | 6.96 | 6.98 | 7.63 | 7.60 | 7.18 | 5.37 | 6.80 | 6.98 | --- |
| 16 | 5.26 | --- | 6.54 | 6.96 | 7.00 | 7.66 | 7.63 | 7.22 | 5.22 | 6.81 | 6.62 | --- |
| 17 | 5.27 | --- | 6.54 | 6.96 | 7.01 | 7.67 | 7.64 | 6.85 | 5.35 | 6.81 | 6.57 | 6.42 |
| 18 | 5.29 | --- | 6.54 | 6.98 | 7.03 | 7.69 | 7.34 | 6.91 | 5.53 | 6.85 | 6.56 | 6.42 |
| 19 | 5.40 | --- | 6.56 | 6.98 | 7.17 | 7.71 | 7.44 | 7.05 | 4.94 | 6.93 | 6.44 | 6.43 |
| 20 | 5.47 | --- | 6.56 | 6.99 | 6.89 | 7.71 | 7.51 | 6.94 | 4.97 | 6.77 | 6.46 | 6.44 |
| 21 | 5.54 | --- | 6.62 | 6.99 | 6.90 | 7.71 | 7.56 | 6.96 | 5.22 | 6.90 | 6.47 | --- |
| 22 | 5.48 | --- | 6.64 | 7.18 | 7.00 | 7.78 | 7.34 | 7.00 | 5.38 | 6.97 | 6.53 | --- |
| 23 | 5.55 | --- | 6.66 | 7.17 | 7.13 | 7.80 | 7.37 | 6.57 | 5.49 | 6.98 | 6.66 | --- |
| 24 | 4.95 | --- | 6.65 | 7.17 | 7.18 | 7.82 | 7.23 | 6.59 | 5.59 | 6.98 | 6.65 | --- |
| 25 | 4.92 | --- | 6.64 | 7.25 | 7.22 | 7.83 | 7.24 | 6.53 | 5.68 | 6.96 | 6.42 | --- |
| 26 | 5.04 | --- | 6.64 | 7.27 | 7.25 | 7.84 | 6.98 | 6.57 | 5.72 | 7.00 | 5.45 | 6.22 |
| 27 | 5.13 | --- | 6.67 | 7.30 | 7.25 | 7.84 | 6.98 | 6.64 | 5.82 | 6.75 | 5.43 | 6.27 |
| 28 | 5.03 | --- | 6.69 | 7.32 | 7.25 | 7.84 | 6.82 | 6.74 | 5.94 | 6.86 | 5.46 | 6.34 |
| 29 | 5.16 | --- | 6.54 | 6.98 | --- | 7.89 | 6.44 | 6.52 | 5.99 | 6.95 | 5.57 | 6.16 |
| 30 | 5.25 | --- | 6.14 | 6.96 | --- | 7.79 | 6.40 | 6.52 | 5.77 | 6.98 | 5.71 | 6.14 |
| 31 | 5.30 | --- | 6.16 | 6.96 | --- | 7.67 | --- | 5.56 | --- | 6.97 | 5.85 | --- |
| MEAN | 5.07 | 5.36 | 6.50 | 6.87 | 6.89 | 7.63 | 7.31 | 6.79 | 5.29 | 6.66 | 6.60 | 6.28 |

WTR YR 1993 MEAN 6.54 HIGHEST 4.29 MAY 31, 1993 LOWEST 7.92 MAR. 29, 1993



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ST. THOMAS, U.S. VIRGIN ISLANDS

50252000 BONNE RESOLUTION GUT AT BONNE RESOLUTION, ST. THOMAS, VI

LOCATION.--Lat 18°21'57", long 64°57'34", Hydrologic Unit 21020001, on right bank near Hull Bay Road, 0.5 mi (0.8 km) upstream from Atlantic Ocean, and 2.5 mi (4.0 km) northwest of Fort Christian, Charlotte Amalie.

DRAINAGE AREA.--0.49 mi² (1.27 km²).

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--December 1962 to February 1967, March 1979 to April 1981, May 1982 to current year.

GAGE.--Water-stage recorder and crest-stage gage. Elevation of gage is 280 ft (85 m), from topographic map. December 1962 to February 1967 and March 1979 to April 1981 at site about 100 ft (30 m) upstream at different datum.

REMARKS.--Records poor.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993
DAILY MEAN VALUES

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|-------|------|-------|------|------|------|------|------|------|------|------|------|------|
| 1 | .01 | .07 | .08 | .05 | .01 | .01 | .01 | .03 | .02 | .02 | .01 | .01 |
| 2 | .01 | .07 | .05 | .04 | .01 | .01 | .01 | .04 | .01 | .02 | .01 | .01 |
| 3 | .01 | .78 | .04 | .03 | .02 | .01 | .01 | .04 | .02 | .02 | .01 | .01 |
| 4 | .01 | 2.6 | .04 | .03 | .02 | .01 | .01 | .04 | .02 | .02 | .01 | .01 |
| 5 | .01 | .32 | .03 | .03 | .02 | .01 | .01 | .05 | .02 | .03 | .01 | .12 |
| 6 | .01 | .19 | .03 | .03 | .01 | .01 | .01 | .06 | .03 | .03 | .01 | .02 |
| 7 | .01 | .12 | .03 | .02 | .01 | .01 | .01 | .07 | .03 | .03 | .01 | .01 |
| 8 | .85 | .10 | .03 | .02 | .01 | .01 | .01 | .04 | .05 | .03 | .01 | .01 |
| 9 | .26 | .10 | .03 | .02 | .01 | .01 | .01 | .08 | .02 | .02 | .01 | .01 |
| 10 | .14 | .08 | .03 | .02 | .01 | .02 | .02 | .04 | .02 | .02 | .01 | .02 |
| 11 | .12 | .06 | .03 | .02 | .01 | .02 | .02 | .04 | .01 | .01 | .01 | .01 |
| 12 | .10 | .07 | .03 | .02 | .01 | .02 | .04 | .03 | .02 | .02 | .01 | .01 |
| 13 | .33 | .07 | .03 | .02 | .01 | .02 | .03 | .05 | .02 | .02 | .01 | .01 |
| 14 | .24 | .08 | .03 | .02 | .01 | .02 | .05 | .09 | .01 | .02 | .01 | .01 |
| 15 | .15 | .18 | .04 | .02 | .01 | .04 | .03 | .03 | .02 | .02 | .01 | .01 |
| 16 | 1.2 | .12 | .03 | .02 | .01 | .03 | .03 | .03 | .02 | .01 | .01 | .01 |
| 17 | .37 | .11 | .03 | .03 | .01 | .01 | .03 | .03 | .01 | .01 | .01 | .01 |
| 18 | .15 | .12 | .03 | .03 | .01 | .01 | .03 | .03 | .01 | .01 | .01 | .01 |
| 19 | .12 | .10 | .04 | .02 | .01 | .01 | .05 | .03 | .81 | .01 | .01 | .01 |
| 20 | .26 | .09 | .03 | .02 | .01 | .01 | .06 | .03 | 5.7 | .02 | .01 | .01 |
| 21 | .15 | .12 | .04 | .02 | .01 | .01 | .04 | .03 | .10 | .02 | .01 | .01 |
| 22 | .12 | .17 | .04 | .02 | .01 | .02 | .04 | .03 | .17 | .02 | .01 | .01 |
| 23 | .10 | .15 | .04 | .02 | .01 | .02 | .04 | .06 | .06 | .01 | .01 | .01 |
| 24 | .15 | .10 | .06 | .01 | .02 | .03 | .03 | .02 | .03 | .01 | .01 | .01 |
| 25 | .14 | .08 | .06 | .01 | .02 | .03 | .07 | .02 | .03 | .01 | .01 | .01 |
| 26 | .12 | .07 | .78 | .01 | .02 | .03 | .05 | .03 | .02 | .01 | .01 | .01 |
| 27 | .11 | 5.0 | .08 | .02 | .02 | .01 | .02 | .03 | .02 | .01 | .02 | .01 |
| 28 | .10 | .81 | .05 | .02 | .02 | .01 | .03 | .03 | .02 | .01 | .02 | .01 |
| 29 | .10 | .24 | .57 | .02 | --- | .02 | .02 | .02 | .02 | .01 | .02 | .01 |
| 30 | .10 | .20 | 6.8 | .02 | --- | .01 | .03 | .02 | .02 | .01 | .01 | 6.9 |
| 31 | .08 | --- | .14 | .02 | --- | .01 | --- | .02 | --- | .01 | .01 | --- |
| TOTAL | 5.63 | 12.37 | 9.37 | 0.70 | 0.36 | 0.50 | 0.85 | 1.19 | 7.36 | 0.52 | 0.34 | 7.32 |
| MEAN | .18 | .41 | .30 | .023 | .013 | .016 | .028 | .038 | .25 | .017 | .011 | .24 |
| MAX | 1.2 | 5.0 | 6.8 | .05 | .02 | .04 | .07 | .09 | 5.7 | .03 | .02 | 6.9 |
| MIN | .01 | .06 | .03 | .01 | .01 | .01 | .01 | .02 | .01 | .01 | .01 | .01 |
| AC-FT | 11 | 25 | 19 | 1.4 | .7 | 1.0 | 1.7 | 2.4 | 15 | 1.0 | .7 | 15 |
| CFSM | .37 | .84 | .62 | .05 | .03 | .03 | .06 | .08 | .50 | .03 | .02 | .50 |
| IN. | .43 | .94 | .71 | .05 | .03 | .04 | .06 | .09 | .56 | .04 | .03 | .56 |

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1986 - 1993, BY WATER YEAR (WY)

| | MEAN | .71 | 1.00 | .076 | .074 | .074 | .070 | .083 | .49 | .19 | .055 | .073 | 1.24 |
|------|------|------|------|------|------|------|------|------|------|------|------|------|------|
| MAX | 3.09 | 4.22 | .30 | .35 | .38 | .31 | .34 | 2.06 | .89 | .18 | .23 | 8.91 | |
| (WY) | 1986 | 1988 | 1993 | 1992 | 1992 | 1987 | 1986 | 1987 | 1987 | 1988 | 1988 | 1989 | |
| MIN | .033 | .016 | .010 | .016 | .009 | .016 | .012 | .016 | .023 | .013 | .011 | .013 | |
| (WY) | 1992 | 1990 | 1990 | 1986 | 1986 | 1993 | 1989 | 1989 | 1989 | 1991 | 1993 | 1992 | |

SUMMARY STATISTICS FOR 1992 CALENDAR YEAR FOR 1993 WATER YEAR WATER YEARS 1963 - 1993

| ANNUAL TOTAL | 60.62 | 46.51 | |
|--------------------------|-------|--------|------|
| ANNUAL MEAN | .17 | .13 | .29 |
| HIGHEST ANNUAL MEAN | | | .77 |
| LOWEST ANNUAL MEAN | | | .058 |
| HIGHEST DAILY MEAN | 9.3 | Feb 4 | 90 |
| LOWEST DAILY MEAN | .01 | Jan 2 | .00 |
| ANNUAL SEVEN-DAY MINIMUM | .01 | Jan 12 | .00 |
| INSTANTANEOUS PEAK FLOW | | | 148 |
| INSTANTANEOUS PEAK STAGE | | | 3.17 |
| INSTANTANEOUS LOW FLOW | | | .01 |
| ANNUAL RUNOFF (AC-FT) | 120 | 92 | 224 |
| ANNUAL RUNOFF (CFSM) | .34 | .26 | .59 |
| ANNUAL RUNOFF (INCHES) | 4.60 | 3.53 | 8.04 |
| 10 PERCENT EXCEEDS | .12 | .12 | .14 |
| 50 PERCENT EXCEEDS | .02 | .02 | .03 |
| 90 PERCENT EXCEEDS | .01 | .01 | .01 |

50274000 TURPENTINE RUN AT MOUNT ZION, ST. THOMAS, VI

LOCATION.--Lat 18°19'55", long 64°53'20", Hydrologic Unit 21020001, on left bank at Mount Zion, 0.6 mi (0.9 km) east southeast from Donce School, 0.5 mi (0.8 km) northwest from Mariendal, and 0.4 mi (0.6 km) southeast from conjunction of roads 38 and 32.

DRAINAGE AREA.--2.33 mi² (6.03 km²).

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--October 1992 to September 1993.

GAGE.--Water-stage recorder and crest-stage gage. Elevation of gage is 120 ft (36 m), from topographic map.

REMARKS.--Records poor.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993
DAILY MEAN VALUES

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|-------|-------|--------|--------|-------|------|------|-------|-------|-------|-------|------|-------|
| 1 | e.15 | d.84 | e1.0 | e.60 | e.23 | e.16 | .06 | .71 | .31 | .60 | .30 | .19 |
| 2 | e.15 | e.84 | e.60 | e.47 | e.23 | e.16 | .06 | .36 | .27 | .87 | .17 | .13 |
| 3 | e.16 | e10 | e.48 | e.36 | e.22 | e.15 | .06 | .20 | e.41 | .91 | .18 | .13 |
| 4 | e.15 | e30 | e.50 | e.40 | e.23 | e.13 | .10 | .20 | e.52 | .63 | .19 | 1.6 |
| 5 | e.14 | e3.5 | e.45 | e.46 | e.22 | e.13 | .16 | .32 | e.52 | .56 | .19 | 1.1 |
| 6 | e.14 | e2.5 | e.42 | e.45 | e.20 | e.13 | .15 | .22 | e.78 | .54 | .17 | .31 |
| 7 | e.14 | e1.5 | e.40 | e.40 | e.20 | e.12 | .11 | .19 | e.78 | .78 | .16 | .19 |
| 8 | e10 | e1.2 | e.40 | e.40 | e.20 | e.12 | .10 | .24 | e1.3 | .59 | .17 | .36 |
| 9 | e1.3 | e1.2 | e.38 | e.40 | e.18 | e.12 | .16 | 5.7 | e.52 | .51 | .17 | .16 |
| 10 | e1.7 | e1.0 | e.36 | e.37 | e.16 | e.22 | .17 | 1.1 | e.52 | .57 | .18 | .13 |
| 11 | e1.4 | e.74 | e.36 | e.36 | e.16 | e.23 | .30 | .58 | e.45 | .57 | .13 | .13 |
| 12 | e1.2 | e.84 | e.36 | e.36 | e.16 | e.22 | .49 | .32 | e.52 | .52 | .16 | .14 |
| 13 | e3.8 | e.84 | e.40 | e.37 | e.15 | e.22 | .16 | .24 | e.48 | .46 | .15 | .12 |
| 14 | e2.5 | e.98 | e.40 | e.37 | e.14 | e.23 | .59 | .62 | e.45 | .67 | .15 | .10 |
| 15 | e1.8 | e2.1 | e.47 | e.36 | e.14 | e.15 | 2.1 | .26 | e.52 | .43 | .37 | .74 |
| 16 | e14 | e1.4 | e.40 | e.37 | e.15 | e.35 | .97 | .22 | e.46 | .41 | .29 | 1.8 |
| 17 | e2.7 | e1.3 | e.40 | e.40 | e.15 | e.12 | .26 | .22 | e.46 | .37 | .14 | .51 |
| 18 | e1.8 | e1.4 | e.40 | e.45 | e.14 | e.12 | .36 | .20 | e.43 | .38 | .13 | .55 |
| 19 | e1.5 | e1.2 | e.48 | e.50 | e.14 | e.11 | .31 | .19 | e70 | .38 | .09 | .23 |
| 20 | e3.0 | e1.1 | e.49 | e.52 | e.15 | e.11 | .45 | .21 | 5.5 | .34 | .08 | .67 |
| 21 | e1.8 | e1.5 | e.49 | e.51 | e.15 | e.11 | 2.6 | .30 | 1.8 | .30 | .08 | .25 |
| 22 | e1.5 | e2.0 | e.48 | e.46 | e.15 | e.22 | .29 | 3.8 | 2.0 | .68 | .21 | .15 |
| 23 | e1.2 | e1.8 | e.48 | e.45 | e.15 | e.22 | .18 | 1.6 | .98 | .47 | .16 | .16 |
| 24 | e1.8 | e1.2 | e.72 | e.44 | e.20 | e.34 | .16 | .59 | .80 | .34 | .14 | .81 |
| 25 | e1.7 | e1.0 | e1.5 | e.40 | e.23 | e.34 | .31 | 1.2 | .72 | .28 | .12 | .27 |
| 26 | e1.5 | e.86 | e9.0 | e.36 | e.22 | .06 | .39 | .70 | .65 | .28 | .08 | .13 |
| 27 | e1.3 | e60 | e1.0 | e.34 | e.22 | .06 | .28 | 1.3 | .72 | .22 | .08 | e.17 |
| 28 | e1.2 | e10 | e.60 | e.34 | e.20 | .18 | 12 | .80 | .65 | .21 | .09 | e.14 |
| 29 | e1.2 | e28 | e10 | e.31 | --- | .09 | 3.0 | .57 | .64 | .20 | .11 | e.13 |
| 30 | e1.2 | e24 | e80 | e.28 | --- | .49 | 1.2 | .36 | .59 | .19 | .14 | e80 |
| 31 | e1.0 | --- | e35 | e.25 | --- | .07 | --- | .34 | --- | .28 | .18 | --- |
| TOTAL | 63.13 | 194.84 | 148.42 | 12.51 | 5.07 | 5.48 | 27.53 | 23.86 | 94.75 | 14.54 | 4.96 | 91.50 |
| MEAN | 2.04 | 6.49 | 4.79 | .40 | .18 | .18 | .92 | .77 | 3.16 | .47 | .16 | 3.05 |
| MAX | 14 | 60 | 80 | .60 | .23 | .49 | 12 | 5.7 | 70 | .91 | .37 | 80 |
| MIN | .14 | .74 | .36 | .25 | .14 | .06 | .06 | .19 | .27 | .19 | .08 | .10 |
| AC-FT | 125 | 386 | 294 | 25 | 10 | 11 | 55 | 47 | 188 | 29 | 9.8 | 181 |
| CFSM | .87 | 2.79 | 2.05 | .17 | .08 | .08 | .39 | .33 | 1.36 | .20 | .07 | 1.31 |
| IN. | 1.01 | 3.11 | 2.37 | .20 | .08 | .09 | .44 | .38 | 1.51 | .23 | .08 | 1.46 |

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1993 - 1993, BY WATER YEAR (WY)

| | 1993 | 1993 | 1993 | 1993 | 1993 | 1993 | 1993 | 1993 | 1993 | 1993 | 1993 | 1993 |
|------|------|------|------|------|------|------|------|------|------|------|------|------|
| MEAN | 2.04 | 6.49 | 4.79 | .40 | .18 | .18 | .92 | .77 | 3.16 | .47 | .16 | 3.05 |
| MAX | 2.04 | 6.49 | 4.79 | .40 | .18 | .18 | .92 | .77 | 3.16 | .47 | .16 | 3.05 |
| (WY) | 1993 | 1993 | 1993 | 1993 | 1993 | 1993 | 1993 | 1993 | 1993 | 1993 | 1993 | 1993 |
| MIN | 2.04 | 6.49 | 4.79 | .40 | .18 | .18 | .92 | .77 | 3.16 | .47 | .16 | 3.05 |
| (WY) | 1993 | 1993 | 1993 | 1993 | 1993 | 1993 | 1993 | 1993 | 1993 | 1993 | 1993 | 1993 |

SUMMARY STATISTICS

FOR 1993 WATER YEAR

| | |
|--------------------------|-------------|
| ANNUAL TOTAL | 686.59 |
| ANNUAL MEAN | 1.88 |
| HIGHEST DAILY MEAN | 80 Dec 30 |
| LOWEST DAILY MEAN | .06 Mar 26 |
| ANNUAL SEVEN-DAY MINIMUM | .09 Mar 31 |
| INSTANTANEOUS PEAK FLOW | 336 Apr 28 |
| INSTANTANEOUS PEAK STAGE | 4.93 Apr 28 |
| ANNUAL RUNOFF (AC-FT) | 1360 |
| ANNUAL RUNOFF (CFSM) | .81 |
| ANNUAL RUNOFF (INCHES) | 10.96 |
| 10 PERCENT EXCEEDS | 1.8 |
| 50 PERCENT EXCEEDS | .37 |
| 90 PERCENT EXCEEDS | .13 |

e Estimated

ST. JOHN, U.S. VIRGIN ISLANDS

50292600 LAMESHUR BAY GUT AT LAMESHUR, ST. JOHN, VI

LOCATION.--Lat 18°19'35", long 64°43'20", Hydrologic Unit 21020001, on left bank, 0.7 mi (1.1 km), northwest from Mina Hill top, 1.2 mi (1.9 km), west southwest from Calabash Boom Cementery, 0.8 mi (1.3 km), southeast from top of Bordeaux Mtn.

DRAINAGE AREA.--0.38 mi² (0.98 km²).

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--August 1992 to current year.

GAGE.--Water-stage recorder. Elevation of gage is 40 ft (12 m), from topographic map.

REMARKS.--Records poor. Gage-height and precipitation satellite telemetry at station.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1991 TO SEPTEMBER 1992
DAILY MEAN VALUES

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|-------|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|------|
| 1 | | | | | | | | | | | | .00 |
| 2 | | | | | | | | | | | | .00 |
| 3 | | | | | | | | | | | | .00 |
| 4 | | | | | | | | | | | | .00 |
| 5 | | | | | | | | | | | | .00 |
| 6 | | | | | | | | | | | | .00 |
| 7 | | | | | | | | | | | | .00 |
| 8 | | | | | | | | | | | | .00 |
| 9 | | | | | | | | | | | | .00 |
| 10 | | | | | | | | | | | | .00 |
| 11 | | | | | | | | | | | | .00 |
| 12 | | | | | | | | | | | | .00 |
| 13 | | | | | | | | | | | | .00 |
| 14 | | | | | | | | | | | | .00 |
| 15 | | | | | | | | | | | | .00 |
| 16 | | | | | | | | | | | | .00 |
| 17 | | | | | | | | | | | | .00 |
| 18 | | | | | | | | | | | | .00 |
| 19 | | | | | | | | | | | .00 | .00 |
| 20 | | | | | | | | | | | .00 | e.00 |
| 21 | | | | | | | | | | | .00 | e.00 |
| 22 | | | | | | | | | | | .00 | e.00 |
| 23 | | | | | | | | | | | .00 | e.00 |
| 24 | | | | | | | | | | | .00 | e.00 |
| 25 | | | | | | | | | | | .00 | e.00 |
| 26 | | | | | | | | | | | .00 | e.00 |
| 27 | | | | | | | | | | | .00 | e.00 |
| 28 | | | | | | | | | | | .00 | e.00 |
| 29 | | | | | | | | | | | .00 | e.00 |
| 30 | | | | | | | | | | | .00 | e.00 |
| 31 | | | | | | | | | | | .00 | --- |
| TOTAL | | | | | | | | | | | --- | 0.00 |
| MEAN | | | | | | | | | | | --- | .000 |
| MAX | | | | | | | | | | | --- | .00 |
| MIN | | | | | | | | | | | --- | .00 |
| AC-FT | | | | | | | | | | | --- | .00 |
| CFSM | | | | | | | | | | | --- | .00 |
| IN. | | | | | | | | | | | --- | .00 |

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1992 - 1992, BY WATER YEAR (WY)

| | | |
|-------------|-----|------|
| MEAN | --- | .000 |
| MAX | --- | .000 |
| (WY) | --- | 1992 |
| MIN | --- | .000 |
| (WY) | --- | 1992 |
| e Estimated | | |

50292600 LAMESHUR BAY GUT AT LAMESHUR, ST. JOHN, VI--Continued

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993
DAILY MEAN VALUES

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|-------|------|------|------|------|------|------|------|------|------|------|------|------|
| 1 | e.00 | .00 | .16 | .14 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 |
| 2 | e.00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 |
| 3 | e.00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 |
| 4 | e.00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 |
| 5 | e.00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 |
| 6 | e.00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 |
| 7 | e.00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | e.00 |
| 8 | e.00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | e.00 |
| 9 | e.00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | e.00 |
| 10 | e.00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | e.00 |
| 11 | e.00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | e.00 |
| 12 | e.00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | e.00 |
| 13 | e.00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | e.00 |
| 14 | e.00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | e.00 |
| 15 | e.00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | e.00 |
| 16 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | e.00 |
| 17 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | e.00 |
| 18 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | e.00 |
| 19 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | e.00 |
| 20 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | e.00 |
| 21 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | e.00 |
| 22 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 |
| 23 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 |
| 24 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 |
| 25 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 |
| 26 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | e.00 |
| 27 | .00 | .19 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | e.00 |
| 28 | .00 | e1.3 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | e.00 |
| 29 | .00 | e1.4 | .00 | .00 | --- | .00 | .00 | .00 | .00 | .00 | .00 | .00 |
| 30 | .00 | e.90 | .51 | .00 | --- | .00 | .00 | .00 | .00 | .00 | .00 | e.00 |
| 31 | .00 | --- | .37 | .00 | --- | .00 | --- | .00 | --- | .00 | .00 | --- |
| TOTAL | 0.00 | 3.79 | 1.04 | 0.14 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| MEAN | .000 | .13 | .034 | .005 | .000 | .000 | .000 | .000 | .000 | .000 | .000 | .000 |
| MAX | .00 | 1.4 | .51 | .14 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 |
| MIN | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 |
| AC-FT | .00 | 7.5 | 2.1 | .3 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 |
| CFSM | .00 | .33 | .09 | .01 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 |
| IN. | .00 | .37 | .10 | .01 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 |

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1992 - 1993, BY WATER YEAR (WY)

| | MEAN | .000 | .13 | .034 | .005 | .000 | .000 | .000 | .000 | .000 | .000 | .000 |
|------|------|------|------|------|------|------|------|------|------|------|------|------|
| MAX | .000 | .13 | .034 | .005 | .000 | .000 | .000 | .000 | .000 | .000 | .000 | .000 |
| (WY) | 1993 | 1993 | 1993 | 1993 | 1993 | 1993 | 1993 | 1993 | 1993 | 1993 | 1993 | 1992 |
| MIN | .000 | .13 | .034 | .005 | .000 | .000 | .000 | .000 | .000 | .000 | .000 | .000 |
| (WY) | 1993 | 1993 | 1993 | 1993 | 1993 | 1993 | 1993 | 1993 | 1993 | 1993 | 1993 | 1992 |

SUMMARY STATISTICS

FOR 1993 WATER YEAR

WATER YEARS 1992 - 1993

| | | | | | | | | | | | | |
|--------------------------|------|--------|--|--|--|--|--|--|--|------|--------|------|
| ANNUAL TOTAL | 4.97 | | | | | | | | | | | |
| ANNUAL MEAN | .014 | | | | | | | | | .014 | | |
| HIGHEST ANNUAL MEAN | | | | | | | | | | .014 | | 1993 |
| LOWEST ANNUAL MEAN | | | | | | | | | | .014 | | 1993 |
| HIGHEST DAILY MEAN | 1.4 | Nov 29 | | | | | | | | 1.4 | Nov 29 | 1992 |
| LOWEST DAILY MEAN | .00 | Oct 1 | | | | | | | | .00 | Aug 19 | 1992 |
| ANNUAL SEVEN-DAY MINIMUM | .00 | Oct 1 | | | | | | | | .00 | Aug 19 | 1992 |
| INSTANTANEOUS PEAK FLOW | 4.2 | Nov 27 | | | | | | | | 4.2 | Nov 27 | 1992 |
| INSTANTANEOUS PEAK STAGE | 2.23 | Nov 27 | | | | | | | | 2.23 | Nov 27 | 1992 |
| INSTANTANEOUS LOW FLOW | .00 | Oct 1 | | | | | | | | .00 | Oct 1 | 1992 |
| ANNUAL RUNOFF (AC-FT) | 9.9 | | | | | | | | | 9.9 | | |
| ANNUAL RUNOFF (CFSM) | .036 | | | | | | | | | .036 | | |
| ANNUAL RUNOFF (INCHES) | .49 | | | | | | | | | .49 | | |
| 10 PERCENT EXCEEDS | .00 | | | | | | | | | .00 | | |
| 50 PERCENT EXCEEDS | .00 | | | | | | | | | .00 | | |
| 90 PERCENT EXCEEDS | .00 | | | | | | | | | .00 | | |

e Estimated

ST. JOHN, U.S. VIRGIN ISLANDS

50294000 FISH BAY GUT AT FISH BAY, ST. JOHN, VI

LOCATION.--Lat 18°19'42", long 64°45'52", Hydrologic Unit 21020001, 0.55 mi (0.88 km) east from Gift Hill top, 1.95 mi (3.13 km) east southeast from Cruz Bay school, 1.00 mi (1.61 km) from Camelberg Peak.

DRAINAGE AREA.--1.48 mi² (3.80 km²).

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--April 1992 to current year.

GAGE.--Water-stage recorder. Elevation of gage is 10 ft (3 m), from topographic map.

REMARKS.--Records poor. Gage-height and precipitation satellite telemetry at station.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1991 TO SEPTEMBER 1992
DAILY MEAN VALUES

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|-------|-----|-----|-----|-----|-----|-----|------|--------|------|------|------|------|
| 1 | | | | | | | | .02 | .11 | .00 | .00 | .00 |
| 2 | | | | | | | | 12 .10 | .10 | .00 | .00 | .00 |
| 3 | | | | | | | | 1.3 | .11 | .00 | .00 | .00 |
| 4 | | | | | | | | .78 | .11 | .00 | .00 | .00 |
| 5 | | | | | | | | .50 | .10 | .00 | .00 | .00 |
| 6 | | | | | | | | .39 | .09 | .00 | .00 | .00 |
| 7 | | | | | | | | .34 | .05 | .00 | .00 | .00 |
| 8 | | | | | | | | .28 | .00 | .00 | .00 | .00 |
| 9 | | | | | | | | .20 | .00 | .00 | .00 | .00 |
| 10 | | | | | | | | .11 | .00 | .00 | .00 | .00 |
| 11 | | | | | | | | .02 | .00 | .00 | .00 | .00 |
| 12 | | | | | | | | .00 | .00 | .00 | .00 | .00 |
| 13 | | | | | | | | .00 | .00 | .00 | .00 | .00 |
| 14 | | | | | | | e.00 | .00 | .00 | .00 | .00 | .00 |
| 15 | | | | | | | .00 | .00 | .00 | .00 | .00 | .00 |
| 16 | | | | | | | .00 | .00 | .00 | .00 | .00 | .00 |
| 17 | | | | | | | .00 | .00 | .00 | .00 | .00 | .00 |
| 18 | | | | | | | .00 | .00 | .00 | .00 | .00 | .00 |
| 19 | | | | | | | .00 | .00 | .00 | .00 | .00 | .00 |
| 20 | | | | | | | .00 | .00 | .00 | .00 | .00 | .00 |
| 21 | | | | | | | .00 | .00 | .00 | .00 | .00 | .00 |
| 22 | | | | | | | .00 | .00 | .00 | .00 | .00 | .00 |
| 23 | | | | | | | .00 | .00 | .00 | .00 | .00 | .00 |
| 24 | | | | | | | .00 | 19 .00 | .00 | .00 | .00 | .00 |
| 25 | | | | | | | .00 | .99 | .00 | .00 | .00 | .00 |
| 26 | | | | | | | .00 | .33 | .00 | .00 | .00 | .00 |
| 27 | | | | | | | .00 | .21 | .00 | .00 | .00 | .00 |
| 28 | | | | | | | .00 | .16 | .00 | .00 | .00 | .00 |
| 29 | | | | | | | .00 | .13 | .00 | .00 | .00 | .00 |
| 30 | | | | | | | .00 | .13 | .00 | .00 | .00 | .00 |
| 31 | | | | | | | --- | .12 | --- | .00 | .00 | --- |
| TOTAL | | | | | | | --- | 37.01 | 0.67 | 0.00 | 0.00 | 0.00 |
| MEAN | | | | | | | --- | 1.19 | .022 | .000 | .000 | .000 |
| MAX | | | | | | | --- | .19 | .11 | .00 | .00 | .00 |
| MIN | | | | | | | --- | .00 | .00 | .00 | .00 | .00 |
| AC-FT | | | | | | | --- | .73 | 1.3 | .00 | .00 | .00 |
| CFSM | | | | | | | --- | .81 | .02 | .00 | .00 | .00 |
| IN. | | | | | | | --- | .93 | .02 | .00 | .00 | .00 |

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1992 - 1992, BY WATER YEAR (WY)

| | | | | | | |
|------|-----|------|------|------|------|------|
| MEAN | --- | 1.19 | .022 | .000 | .000 | .000 |
| MAX | --- | 1.19 | .022 | .000 | .000 | .000 |
| (WY) | --- | 1992 | 1992 | 1992 | 1992 | 1992 |
| MIN | --- | 1.19 | .022 | .000 | .000 | .000 |
| (WY) | --- | 1992 | 1992 | 1992 | 1992 | 1992 |

e Estimated

ST. JOHN, U.S. VIRGIN ISLANDS

50294000 FISH BAY GUT AT FISH BAY, ST. JOHN, VI--Continued

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993
DAILY MEAN VALUES

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|-------|------|-------|-------|------|------|------|------|------|------|------|------|------|
| 1 | .00 | .00 | .17 | .37 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 |
| 2 | .00 | .00 | .14 | .26 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 |
| 3 | .00 | .00 | .12 | .22 | .13 | .00 | .00 | .00 | .00 | .00 | .00 | .00 |
| 4 | .00 | .07 | .12 | .23 | .16 | .00 | .00 | .00 | .00 | .00 | .00 | .00 |
| 5 | .00 | .17 | .13 | .30 | .13 | .00 | .00 | .00 | .00 | .00 | .00 | .00 |
| 6 | .00 | .19 | .12 | .50 | .09 | .00 | .00 | .00 | .00 | .00 | .00 | .00 |
| 7 | .00 | .21 | .11 | .44 | .07 | .00 | .00 | .00 | .00 | .00 | .00 | .00 |
| 8 | .00 | e.85 | .08 | .31 | .02 | .00 | .00 | .00 | .00 | .00 | .00 | .00 |
| 9 | .00 | e.21 | .06 | .25 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 |
| 10 | .00 | e.21 | .03 | .23 | .00 | .00 | .00 | .16 | .00 | .00 | .00 | .00 |
| 11 | .00 | e.21 | .00 | .21 | .00 | .00 | .00 | .18 | .00 | .00 | .00 | .00 |
| 12 | .00 | e.21 | .00 | .22 | .00 | .00 | .00 | .14 | .00 | .00 | .00 | .00 |
| 13 | .00 | e.21 | .00 | .20 | .00 | .00 | .00 | .13 | .00 | .00 | .00 | .00 |
| 14 | .00 | e.21 | .00 | .19 | .00 | .00 | .00 | .06 | .00 | .00 | .00 | .00 |
| 15 | .00 | e.21 | .00 | .17 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 |
| 16 | .15 | e.21 | .00 | .14 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 |
| 17 | .16 | .18 | .00 | .13 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 |
| 18 | .17 | .17 | .00 | .11 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 |
| 19 | .17 | .17 | .00 | .07 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 |
| 20 | .16 | .14 | .00 | .02 | .00 | .00 | .00 | .00 | 1.5 | .00 | .00 | .00 |
| 21 | .15 | .13 | .00 | .00 | .00 | .00 | .00 | .00 | .31 | .00 | .00 | .00 |
| 22 | .13 | .13 | .00 | .00 | .00 | .00 | .00 | .00 | .20 | .00 | .00 | .00 |
| 23 | .09 | .13 | .00 | .00 | .00 | .00 | .00 | .00 | .14 | .00 | .00 | .00 |
| 24 | .06 | .11 | .00 | .00 | .00 | .00 | .00 | .00 | .10 | .00 | .00 | .00 |
| 25 | .10 | .10 | .00 | .00 | .00 | .00 | .00 | .00 | .05 | .00 | .00 | .00 |
| 26 | .12 | .09 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 |
| 27 | .11 | 13 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 |
| 28 | .05 | 4.3 | .07 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 |
| 29 | .00 | .47 | .06 | .00 | --- | .00 | .00 | .00 | .00 | .00 | .00 | .00 |
| 30 | .00 | .26 | 8.7 | .00 | --- | .00 | .00 | .00 | .00 | .00 | .00 | .00 |
| 31 | .00 | --- | .68 | .00 | --- | .00 | --- | .00 | --- | .00 | .00 | --- |
| TOTAL | 1.62 | 22.55 | 10.59 | 4.57 | 0.60 | 0.00 | 0.00 | 0.67 | 2.30 | 0.00 | 0.00 | 0.00 |
| MEAN | .052 | .75 | .34 | .15 | .021 | .000 | .000 | .022 | .077 | .000 | .000 | .000 |
| MAX | .17 | .13 | 8.7 | .50 | .16 | .00 | .00 | .18 | 1.5 | .00 | .00 | .00 |
| MIN | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 |
| AC-FT | 3.2 | .45 | .21 | 9.1 | 1.2 | .00 | .00 | 1.3 | 4.6 | .00 | .00 | .00 |
| CFSM | .04 | .51 | .23 | .10 | .01 | .00 | .00 | .01 | .05 | .00 | .00 | .00 |
| IN. | .04 | .57 | .27 | .11 | .02 | .00 | .00 | .02 | .06 | .00 | .00 | .00 |

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1992 - 1993, BY WATER YEAR (WY)

| | MEAN | .052 | .75 | .34 | .15 | .021 | .000 | .000 | .61 | .049 | .000 | .000 | .000 |
|------|------|------|------|------|------|------|------|------|------|------|------|------|------|
| MAX | .052 | .75 | .34 | .15 | .021 | .000 | .000 | 1.19 | .077 | .000 | .000 | .000 | .000 |
| (WY) | 1993 | 1993 | 1993 | 1993 | 1993 | 1993 | 1993 | 1992 | 1993 | 1992 | 1992 | 1992 | 1992 |
| MIN | .052 | .75 | .34 | .15 | .021 | .000 | .000 | .022 | .022 | .000 | .000 | .000 | .000 |
| (WY) | 1993 | 1993 | 1993 | 1993 | 1993 | 1993 | 1993 | 1993 | 1992 | 1992 | 1992 | 1992 | 1992 |

SUMMARY STATISTICS

FOR 1993 WATER YEAR

WATER YEARS 1992 - 1993

| | | | |
|--------------------------|-------|--------|------|
| ANNUAL TOTAL | 42.90 | | |
| ANNUAL MEAN | .12 | .12 | |
| HIGHEST ANNUAL MEAN | | .12 | 1993 |
| LOWEST ANNUAL MEAN | | .12 | 1993 |
| HIGHEST DAILY MEAN | 13 | Nov 27 | 19 |
| LOWEST DAILY MEAN | .00 | Oct 1 | .00 |
| ANNUAL SEVEN-DAY MINIMUM | .00 | Oct 1 | .00 |
| INSTANTANEOUS PEAK FLOW | 265 | Nov 27 | 265 |
| INSTANTANEOUS PEAK STAGE | 3.57 | Nov 27 | 3.57 |
| INSTANTANEOUS LOW FLOW | .00 | Oct 1 | .00 |
| ANNUAL RUNOFF (AC-FT) | 85 | | 85 |
| ANNUAL RUNOFF (CFSM) | .079 | | .079 |
| ANNUAL RUNOFF (INCHES) | 1.08 | | 1.08 |
| 10 PERCENT EXCEEDS | .17 | | .17 |
| 50 PERCENT EXCEEDS | .00 | | .00 |
| 90 PERCENT EXCEEDS | .00 | | .00 |

e Estimated

ST. JOHN, U.S. VIRGIN ISLANDS

50295000 GUINEA GUT AT BETHANY, ST. JOHN, VI

LOCATION.--Lat 18°19'55", long 64°46'50", Hydrologic Unit 21020001, 600 ft (183 m) southeast of Bethany Church, and 1.0 mi (1.6 km) east of Government House at Cruz Bay.

DRAINAGE AREA.--0.37 mi² (0.96 km²).

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--January 1963 to October 1967, September 1982 to current year.

GAGE.--Water-stage recorder and concrete control. Elevation of gage is 260 ft (79 m), from topographic map. Prior to September 1982, at datum 1.00 ft (0.30 m) higher.

REMARKS.--Records poor. Gage-height and precipitation satellite telemetry at station.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993
DAILY MEAN VALUES

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|-------|------|------|------|------|------|------|------|------|------|------|------|------|
| 1 | .00 | .00 | .00 | .01 | .04 | .00 | .00 | .01 | .00 | .00 | .00 | .00 |
| 2 | .00 | .00 | .00 | .00 | .02 | .00 | .00 | .01 | .00 | .00 | .00 | .00 |
| 3 | .00 | .00 | .00 | .00 | .00 | .01 | .00 | .00 | .00 | .00 | .00 | .00 |
| 4 | .00 | .00 | .00 | .00 | .00 | .01 | .00 | .00 | .00 | .00 | .00 | .00 |
| 5 | .00 | .00 | .00 | .01 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .02 |
| 6 | .00 | .01 | .00 | .01 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .01 |
| 7 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .01 |
| 8 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .01 |
| 9 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .01 | .00 | .00 | .00 | .01 |
| 10 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .01 |
| 11 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .01 |
| 12 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .01 |
| 13 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .01 |
| 14 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 |
| 15 | .00 | .06 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 |
| 16 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 |
| 17 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 |
| 18 | .00 | .01 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 |
| 19 | .00 | .01 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 |
| 20 | .00 | .01 | .00 | .00 | .00 | e.00 | .00 | .00 | .70 | .00 | .00 | .00 |
| 21 | .00 | .00 | .00 | .00 | .00 | e.00 | .00 | .00 | .01 | .00 | .00 | .00 |
| 22 | .00 | .00 | .00 | .00 | .00 | e.00 | .00 | .00 | .01 | .00 | .00 | .00 |
| 23 | .00 | .00 | .00 | .00 | .00 | e.00 | .00 | .00 | .01 | .00 | .00 | .00 |
| 24 | .00 | .01 | .00 | .00 | .00 | e.00 | .00 | .00 | .01 | .00 | .00 | .00 |
| 25 | .00 | .00 | .00 | .00 | .00 | e.00 | .00 | .00 | .01 | .00 | .00 | .00 |
| 26 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .01 | .00 | .00 | .00 |
| 27 | .00 | .05 | .00 | .01 | .00 | .00 | .00 | .01 | .00 | .00 | .00 | .00 |
| 28 | .00 | .02 | .00 | .01 | .00 | .00 | .02 | .00 | .00 | .00 | .00 | .00 |
| 29 | .00 | .00 | .00 | .01 | --- | .00 | .01 | .00 | .00 | .00 | .00 | .00 |
| 30 | .00 | .00 | .78 | .02 | --- | .00 | .00 | .00 | .00 | .00 | .00 | .00 |
| 31 | .00 | --- | .01 | .03 | --- | .00 | --- | .00 | --- | .00 | .00 | --- |
| TOTAL | 0.00 | 0.18 | 0.79 | 0.11 | 0.06 | 0.02 | 0.03 | 0.04 | 0.76 | 0.00 | 0.00 | 0.10 |
| MEAN | .000 | .006 | .025 | .004 | .002 | .001 | .001 | .001 | .025 | .000 | .000 | .003 |
| MAX | .00 | .06 | .78 | .03 | .04 | .01 | .02 | .01 | .70 | .00 | .00 | .02 |
| MIN | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 |
| AC-FT | .00 | .4 | 1.6 | .2 | .1 | .04 | .06 | .08 | 1.5 | .00 | .00 | .2 |
| CFSM | .00 | .02 | .07 | .01 | .01 | .00 | .00 | .00 | .07 | .00 | .00 | .01 |
| IN. | .00 | .02 | .08 | .01 | .01 | .00 | .00 | .00 | .08 | .00 | .00 | .01 |

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1984 - 1993, BY WATER YEAR (WY)

| | MEAN | MAX | (WY) | MIN | (WY) |
|------|------|------|------|------|------|
| 1984 | .062 | .23 | 1986 | .000 | 1992 |
| 1985 | .41 | 2.52 | 1985 | .000 | 1992 |
| 1986 | .027 | .11 | 1989 | .000 | 1987 |
| 1987 | .015 | .044 | 1989 | .000 | 1992 |
| 1988 | .006 | .017 | 1989 | .000 | 1992 |
| 1989 | .004 | .009 | 1985 | .000 | 1986 |
| 1990 | .023 | .17 | 1986 | .000 | 1992 |
| 1991 | .13 | .89 | 1986 | .001 | 1993 |
| 1992 | .013 | .031 | 1987 | .000 | 1991 |
| 1993 | .009 | .038 | 1990 | .000 | 1987 |
| | .011 | .026 | 1988 | .000 | 1991 |
| | .31 | 2.35 | 1989 | .000 | 1991 |

SUMMARY STATISTICS FOR 1992 CALENDAR YEAR FOR 1993 WATER YEAR WATER YEARS 1963 - 1993

| | 1992 CALENDAR YEAR | 1993 WATER YEAR | 1963 - 1993 |
|--------------------------|--------------------|-----------------|------------------|
| ANNUAL TOTAL | 11.97 | 2.09 | |
| ANNUAL MEAN | .033 | .006 | .084 |
| HIGHEST ANNUAL MEAN | | | .22 |
| LOWEST ANNUAL MEAN | | | .002 |
| HIGHEST DAILY MEAN | 7.5 May 24 | .78 Dec 30 | 43 Nov 7 1984 |
| LOWEST DAILY MEAN | .00 Jan 1 | .00 Oct 1 | .00 Oct 25 1983 |
| ANNUAL SEVEN-DAY MINIMUM | .00 Jan 1 | .00 Oct 1 | .00 Feb 16 1984 |
| INSTANTANEOUS PEAK FLOW | | 19 Jun 20 | 946 Apr 18 1983 |
| INSTANTANEOUS PEAK STAGE | | 2.18 Jun 20 | 5.33 Apr 18 1983 |
| ANNUAL RUNOFF (AC-FT) | 24 | 4.1 | 60 |
| ANNUAL RUNOFF (CFSM) | .088 | .015 | .23 |
| ANNUAL RUNOFF (INCHES) | 1.20 | .21 | 3.07 |
| 10 PERCENT EXCEEDS | .01 | .01 | .04 |
| 50 PERCENT EXCEEDS | .00 | .00 | .01 |
| 90 PERCENT EXCEEDS | .00 | .00 | .00 |

e Estimated

ST. JOHN, U.S. VIRGIN ISLANDS

50295500 CRUZ BAY GUT AT CRUZ BAY, ST. JOHN, VI

LOCATION.--Lat 18°19'42", long 64°45'53", Hydrologic Unit 21020001, 0.40 mi (0.64 km) east of Government House at Cruz Bay, .45 mi (.72 km) west of Bethany Church and 0.40 mi (0.64 km) southwest of Caneel Hill.

DRAINAGE AREA.--0.09 mi² (0.23 km²).

WATER-STAGE RECORDS

PERIOD OF RECORD.--April 1992 to current year. (discontinued)

GAGE.--Water-stage recorder. Elevation of gage is 120 ft (37 m), from topographic map.

REMARKS.--Gage height and precipitation satellite telemetry at station. All gage-heights of 1.36 ft or lower are considered zero flow.

EXTREMES FOR PERIOD OF RECORD.--Maximum gage-height, 3.11 ft (0.948 m), June 20, 1993; minimum, 1.30 ft (0.396 m), Jan. 1, 1993.

EXTREMES FOR CURRENT YEAR.--Maximum gage-height, 3.11 ft (0.948 m), June 20; minimum, 1.30 ft (0.396 m), Jan. 1.

GAGE HEIGHT, FEET, WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993
DAILY MEAN VALUES

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|------|------|------|------|------|------|------|------|------|------|------|------|------|
| 1 | 1.34 | 1.33 | 1.33 | 1.32 | 1.37 | 1.33 | 1.33 | 1.34 | 1.33 | 1.34 | 1.34 | 1.33 |
| 2 | 1.34 | 1.32 | 1.33 | 1.32 | 1.55 | 1.34 | 1.33 | 1.34 | 1.33 | 1.34 | 1.35 | 1.34 |
| 3 | 1.34 | 1.33 | 1.32 | 1.32 | 1.35 | 1.34 | 1.33 | 1.34 | 1.33 | 1.34 | 1.38 | 1.35 |
| 4 | 1.34 | 1.33 | 1.31 | 1.32 | 1.35 | 1.34 | 1.33 | 1.34 | 1.33 | 1.34 | 1.40 | 1.35 |
| 5 | 1.34 | 1.33 | 1.31 | 1.50 | 1.34 | 1.34 | 1.33 | 1.34 | 1.33 | 1.34 | 1.44 | 1.51 |
| 6 | 1.34 | 1.33 | 1.32 | 1.56 | 1.34 | 1.34 | 1.33 | 1.34 | 1.33 | 1.34 | 1.42 | 1.34 |
| 7 | 1.34 | 1.33 | 1.32 | 1.36 | 1.34 | 1.34 | 1.33 | 1.34 | 1.32 | 1.34 | 1.46 | 1.35 |
| 8 | 1.34 | 1.33 | 1.32 | 1.32 | 1.34 | 1.34 | 1.33 | 1.34 | 1.32 | 1.34 | 1.42 | 1.35 |
| 9 | 1.34 | 1.33 | 1.32 | 1.34 | 1.34 | 1.33 | 1.33 | 1.40 | 1.32 | 1.34 | 1.34 | 1.35 |
| 10 | 1.33 | 1.33 | 1.32 | 1.32 | 1.34 | 1.33 | 1.33 | 1.39 | 1.32 | 1.34 | 1.34 | 1.34 |
| 11 | 1.33 | 1.33 | 1.32 | 1.32 | 1.34 | 1.33 | 1.33 | 1.34 | 1.32 | 1.34 | 1.33 | 1.34 |
| 12 | 1.33 | 1.33 | 1.32 | 1.32 | 1.34 | 1.33 | 1.33 | 1.34 | 1.32 | 1.34 | 1.33 | 1.34 |
| 13 | 1.33 | 1.33 | 1.32 | 1.32 | 1.34 | 1.33 | 1.33 | 1.34 | 1.32 | 1.34 | 1.33 | 1.34 |
| 14 | 1.33 | 1.33 | 1.32 | 1.32 | 1.34 | 1.33 | 1.33 | 1.34 | 1.32 | 1.34 | 1.33 | 1.34 |
| 15 | 1.33 | 1.47 | 1.32 | 1.32 | 1.34 | 1.33 | 1.33 | 1.34 | 1.32 | 1.34 | 1.33 | 1.34 |
| 16 | 1.33 | 1.33 | 1.32 | 1.32 | 1.34 | 1.33 | 1.33 | 1.34 | 1.32 | 1.34 | 1.33 | 1.34 |
| 17 | 1.33 | 1.37 | 1.32 | 1.33 | 1.34 | 1.33 | 1.33 | 1.33 | 1.32 | 1.34 | 1.33 | 1.33 |
| 18 | 1.33 | 1.33 | 1.32 | 1.33 | 1.34 | 1.33 | 1.33 | 1.33 | 1.32 | 1.34 | 1.33 | 1.34 |
| 19 | 1.33 | 1.33 | 1.32 | 1.33 | 1.34 | 1.33 | 1.33 | 1.33 | 1.32 | 1.34 | 1.33 | 1.34 |
| 20 | 1.33 | 1.33 | 1.32 | 1.33 | 1.39 | 1.33 | 1.33 | 1.33 | 1.80 | 1.34 | 1.33 | 1.34 |
| 21 | 1.33 | 1.33 | 1.32 | 1.33 | 1.34 | 1.33 | 1.34 | 1.33 | 1.38 | 1.34 | 1.33 | 1.34 |
| 22 | 1.33 | 1.33 | 1.32 | 1.33 | 1.34 | 1.33 | 1.34 | 1.33 | 1.34 | 1.34 | 1.33 | 1.34 |
| 23 | 1.33 | 1.33 | 1.32 | 1.33 | 1.34 | 1.33 | 1.34 | 1.33 | 1.34 | 1.34 | 1.33 | 1.35 |
| 24 | 1.33 | 1.33 | 1.32 | 1.33 | 1.34 | 1.33 | 1.34 | 1.33 | 1.33 | 1.34 | 1.33 | 1.35 |
| 25 | 1.32 | 1.33 | 1.32 | 1.33 | 1.34 | 1.33 | 1.34 | 1.33 | 1.33 | 1.34 | 1.34 | 1.35 |
| 26 | 1.32 | 1.33 | 1.32 | 1.33 | 1.34 | 1.33 | 1.34 | 1.33 | 1.33 | 1.34 | 1.33 | 1.35 |
| 27 | 1.32 | 1.47 | 1.32 | 1.33 | 1.33 | 1.33 | 1.34 | 1.54 | 1.34 | 1.35 | 1.33 | 1.35 |
| 28 | 1.32 | 1.52 | 1.32 | 1.33 | 1.33 | 1.33 | 1.45 | 1.33 | 1.34 | 1.39 | 1.33 | 1.35 |
| 29 | 1.32 | 1.33 | 1.35 | 1.33 | --- | 1.33 | 1.38 | 1.33 | 1.34 | 1.41 | 1.33 | 1.34 |
| 30 | 1.32 | 1.33 | 1.92 | 1.33 | --- | 1.33 | 1.34 | 1.33 | 1.34 | 1.41 | 1.33 | 1.72 |
| 31 | 1.33 | --- | 1.56 | 1.33 | --- | 1.33 | --- | 1.33 | --- | 1.36 | 1.33 | --- |
| MEAN | 1.33 | 1.35 | 1.35 | 1.34 | 1.35 | 1.33 | 1.34 | 1.35 | 1.34 | 1.35 | 1.35 | 1.36 |
| MAX | 1.34 | 1.52 | 1.92 | 1.56 | 1.55 | 1.34 | 1.45 | 1.54 | 1.80 | 1.41 | 1.46 | 1.72 |
| MIN | 1.32 | 1.32 | 1.31 | 1.32 | 1.33 | 1.33 | 1.33 | 1.33 | 1.32 | 1.34 | 1.33 | 1.33 |

ST. CROIX, U.S. VIRGIN ISLANDS

50332000 RIVER GUT AT RIVER, ST. CROIX, VI

LOCATION.--Lat 17°44'32", long 64°48'52", Hydrologic Unit 21020002, 0.20 mi (0.32 km) north from Quarry, 0.72 mi (1.16 km) northwest from Holly Cross church on route 72, 0.80 mi (1.29 km) southwest from top of Mt. Pleasant.

DRAINAGE AREA.--1.42 mi² (3.68 km²).

WATER-STAGE RECORDS

PERIOD OF RECORD.--November 1991 to current year. (discontinued)

GAGE.--Water-stage recorder. Elevation of gage is 155 ft (47 m), from topographic map.

REMARKS.--Gage-height and precipitation satellite telemetry at station. All gage-heights of 29.60 ft or lower are considered zero flow.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993
DAILY MEAN VALUES

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|-------|-------|-------|-------|------|------|------|------|-------|------|-------|------|------|
| 1 | 5.9 | .85 | 1.6 | .32 | .11 | .12 | .09 | .07 | .11 | .09 | .11 | .10 |
| 2 | 1.5 | .89 | 1.3 | .33 | .17 | .14 | .08 | .06 | .11 | .10 | .11 | .10 |
| 3 | e.60 | .69 | 1.0 | .28 | .80 | .11 | .07 | .08 | .12 | .10 | .10 | .10 |
| 4 | e.35 | 2.2 | .92 | .13 | .23 | .12 | .07 | .09 | .10 | .10 | .10 | .10 |
| 5 | e.19 | 1.2 | .99 | .14 | .11 | .10 | .06 | .09 | .10 | .10 | .10 | .10 |
| 6 | e.12 | .94 | .98 | .33 | .11 | .10 | .05 | .09 | .10 | .10 | .10 | .10 |
| 7 | .10 | .80 | .91 | .63 | .10 | .10 | .05 | .09 | .10 | .10 | .10 | .10 |
| 8 | .15 | .66 | .62 | .56 | .10 | .10 | .04 | .10 | .10 | .10 | .10 | .10 |
| 9 | .16 | .62 | .56 | .50 | .10 | .10 | .05 | .13 | .10 | .10 | .10 | .10 |
| 10 | .10 | .58 | .74 | .58 | .10 | .10 | .07 | .16 | .10 | .09 | .10 | .10 |
| 11 | .10 | .58 | .46 | .62 | .13 | .10 | .07 | .15 | .10 | .09 | .10 | .10 |
| 12 | .10 | .52 | .65 | .57 | .15 | .10 | .08 | .10 | .10 | .10 | .10 | .10 |
| 13 | .39 | .46 | 1.1 | .51 | .12 | .09 | .09 | .10 | .11 | .09 | .10 | .10 |
| 14 | .59 | .40 | .85 | .51 | .31 | .09 | .09 | .10 | .11 | .10 | .10 | .10 |
| 15 | .72 | 2.4 | .74 | .43 | .21 | .09 | .10 | .10 | .10 | .10 | .10 | .10 |
| 16 | .78 | 1.3 | .41 | .34 | .18 | .09 | .11 | .10 | .10 | .10 | .10 | .10 |
| 17 | .65 | 2.6 | .10 | .31 | .23 | .09 | .09 | .10 | .10 | .10 | .10 | .10 |
| 18 | .46 | 1.8 | .10 | .28 | .25 | .09 | .09 | .10 | .10 | .10 | .10 | .10 |
| 19 | .30 | 2.4 | .10 | .27 | .30 | .09 | .08 | .10 | .52 | .10 | .10 | .10 |
| 20 | .18 | 2.2 | .13 | .16 | .34 | .09 | .07 | .10 | .70 | .10 | .10 | .10 |
| 21 | .44 | 1.1 | .13 | .11 | .32 | .09 | .07 | .10 | .17 | .10 | .10 | .10 |
| 22 | .38 | 2.5 | .10 | .11 | .73 | .09 | .07 | .10 | .12 | .10 | .10 | .10 |
| 23 | .28 | 1.3 | .10 | .29 | .43 | .09 | .07 | 1.8 | .10 | 5.4 | .10 | .10 |
| 24 | .12 | 1.4 | .21 | .21 | .11 | .09 | .06 | 1.2 | .10 | 2.3 | .10 | .10 |
| 25 | .35 | 1.3 | .30 | .26 | .10 | .09 | .06 | .11 | .10 | .46 | .10 | .10 |
| 26 | .45 | 1.2 | .28 | .18 | .10 | .08 | .05 | 2.3 | .10 | .28 | .10 | .10 |
| 27 | .34 | 1.2 | .30 | .27 | .10 | .08 | .05 | 20 | .10 | .14 | .10 | .10 |
| 28 | .44 | 1.3 | .25 | .15 | .11 | .08 | .05 | 1.2 | .10 | .11 | .10 | .10 |
| 29 | .33 | 1.2 | 1.1 | .10 | --- | .09 | .05 | .22 | .10 | .10 | .10 | .10 |
| 30 | .13 | 1.1 | 5.5 | .10 | --- | .09 | .07 | .19 | .10 | .11 | .10 | .10 |
| 31 | .18 | --- | .63 | .10 | --- | .09 | --- | .11 | --- | .11 | .10 | --- |
| TOTAL | 16.88 | 37.69 | 23.16 | 9.68 | 6.15 | 2.97 | 2.10 | 29.34 | 4.17 | 11.17 | 3.12 | 3.00 |
| MEAN | .54 | 1.26 | .75 | .31 | .22 | .096 | .070 | .95 | .14 | .36 | .10 | .10 |
| MAX | 5.9 | 2.6 | 5.5 | .63 | .80 | .14 | .11 | 20 | .70 | 5.4 | .11 | .10 |
| MIN | .10 | .40 | .10 | .10 | .10 | .08 | .04 | .06 | .10 | .09 | .10 | .10 |
| MED | .34 | 1.2 | .62 | .28 | .14 | .09 | .07 | .10 | .10 | .10 | .10 | .10 |
| AC-FT | 33 | 75 | 46 | 19 | 12 | 5.9 | 4.2 | 58 | 8.3 | 22 | 6.2 | 6.0 |

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1992 - 1993, BY WATER YEAR (WY)

| | MEAN | .54 | 1.26 | .99 | .19 | .11 | .048 | .041 | 1.38 | .13 | .18 | .050 | .38 |
|------|------|------|------|------|------|------|------|------|------|------|------|------|-----|
| MAX | .54 | 1.26 | 1.24 | .31 | .22 | .096 | .070 | 1.81 | .14 | .36 | .10 | .67 | |
| (WY) | 1993 | 1993 | 1992 | 1993 | 1993 | 1993 | 1993 | 1992 | 1993 | 1993 | 1993 | 1992 | |
| MIN | .54 | 1.26 | .75 | .065 | .014 | .000 | .011 | .95 | .13 | .010 | .000 | .10 | |
| (WY) | 1993 | 1993 | 1993 | 1992 | 1992 | 1992 | 1992 | 1993 | 1992 | 1992 | 1992 | 1993 | |

SUMMARY STATISTICS FOR 1992 CALENDAR YEAR FOR 1993 WATER YEAR WATER YEARS 1992 - 1993

| | ANNUAL TOTAL | 160.83 | 149.43 | |
|--------------------------|--------------|--------|--------|-------------|
| ANNUAL MEAN | .44 | .41 | .41 | 1993 |
| HIGHEST ANNUAL MEAN | | | .41 | 1993 |
| LOWEST ANNUAL MEAN | | | .41 | 1993 |
| HIGHEST DAILY MEAN | 49 | May 24 | 49 | May 24 1992 |
| LOWEST DAILY MEAN | .00 | Feb 17 | .04 | Apr 8 |
| ANNUAL SEVEN-DAY MINIMUM | .00 | Feb 17 | .06 | Apr 3 |
| INSTANTANEOUS PEAK FLOW | | | 230 | May 27 |
| INSTANTANEOUS PEAK STAGE | | | 33.36 | May 27 |
| INSTANTANEOUS LOW FLOW | | | .04 | Apr 8 |
| ANNUAL RUNOFF (AC-FT) | 319 | | 296 | 297 |
| 10 PERCENT EXCEEDS | .91 | | .93 | .79 |
| 50 PERCENT EXCEEDS | .02 | | .10 | .10 |
| 90 PERCENT EXCEEDS | .00 | | .09 | .00 |

e Estimated

ST. CROIX, U.S. VIRGIN ISLANDS

519

50333500 RIVER GUT NEAR GOLDEN GROVE, ST. CROIX, VI

LOCATION.--Lat 17°42'46", long 64°47'58", Hydrologic Unit 21020002, on right bank, 0.4 mi (0.6 km) from Experimental Station, 0.9 mi (1.4 km) from intersection of Highway 66 and road 64, 0.3 mi (0.5 km) from University of the U.S. Virgin Islands (UVI).

DRAINAGE AREA.--5.40 mi² (9.14 km²).

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--August 1990 to current year.

GAGE.--Water-stage recorder. Elevation of gage is mean sea level.

REMARKS.--Records poor. Gage-height and precipitation satellite telemetry at station.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993
DAILY MEAN VALUES

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|-------|------|-------|-------|------|------|------|------|-------|------|------|------|------|
| 1 | .48 | .00 | e.00 | .45 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 |
| 2 | .00 | .00 | e.00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 |
| 3 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 |
| 4 | .00 | .00 | .00 | e.00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 |
| 5 | .00 | .00 | .00 | e.00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 |
| 6 | .00 | .00 | .00 | e.00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 |
| 7 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 |
| 8 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 |
| 9 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 |
| 10 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 |
| 11 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 |
| 12 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 |
| 13 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 |
| 14 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 |
| 15 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 |
| 16 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 |
| 17 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 |
| 18 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 |
| 19 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 |
| 20 | .00 | .03 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 |
| 21 | .00 | e11 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 |
| 22 | .00 | e7.0 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 |
| 23 | .00 | e.50 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | 1.4 | .00 | .00 |
| 24 | .00 | e.00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | 2.9 | .00 | .00 |
| 25 | .00 | e.00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .02 | .00 | .00 |
| 26 | .00 | e.00 | .00 | .00 | .00 | .00 | .00 | 5.8 | .00 | .00 | .00 | .00 |
| 27 | .00 | e.00 | .00 | .00 | .00 | .00 | .00 | 27 | .00 | .00 | .00 | .00 |
| 28 | .00 | e.00 | .00 | .00 | .00 | .00 | .00 | 10 | .00 | .00 | .00 | .00 |
| 29 | .00 | e.00 | .00 | .00 | --- | .00 | .00 | 1.9 | .00 | .00 | .00 | .00 |
| 30 | .00 | e.00 | 10 | .00 | --- | .00 | .00 | .44 | .00 | .00 | .00 | .00 |
| 31 | .00 | --- | 7.3 | .00 | --- | .00 | --- | .00 | --- | .00 | .00 | --- |
| TOTAL | 0.48 | 18.53 | 17.30 | 0.45 | 0.00 | 0.00 | 0.00 | 45.14 | 0.00 | 4.32 | 0.00 | 0.00 |
| MEAN | .015 | .62 | .56 | .015 | .000 | .000 | .000 | 1.46 | .000 | .14 | .000 | .000 |
| MAX | .48 | 11 | 10 | .45 | .00 | .00 | .00 | 27 | .00 | 2.9 | .00 | .00 |
| MIN | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 | .00 |
| AC-FT | 1.0 | 37 | 34 | .9 | .00 | .00 | .00 | 90 | .00 | 8.6 | .00 | .00 |
| CFSM | .00 | .11 | .10 | .00 | .00 | .00 | .00 | .27 | .00 | .03 | .00 | .00 |
| IN. | .00 | .13 | .12 | .00 | .00 | .00 | .00 | .31 | .00 | .03 | .00 | .00 |

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1990 - 1993, BY WATER YEAR (WY)

| | MEAN | 4.53 | .49 | .19 | .005 | .000 | .000 | 1.38 | .000 | .046 | .000 | .001 |
|------|------|------|------|------|------|------|------|------|------|------|------|------|
| MAX | 13.6 | .85 | .56 | .015 | .000 | .000 | .000 | 2.69 | .000 | .14 | .000 | .003 |
| (WY) | 1991 | 1991 | 1993 | 1993 | 1991 | 1991 | 1991 | 1992 | 1991 | 1993 | 1991 | 1990 |
| MIN | .000 | .000 | .000 | .000 | .000 | .000 | .000 | .000 | .000 | .000 | .000 | .000 |
| (WY) | 1992 | 1992 | 1992 | 1991 | 1991 | 1991 | 1991 | 1991 | 1991 | 1991 | 1991 | 1991 |

SUMMARY STATISTICS

FOR 1992 CALENDAR YEAR

FOR 1993 WATER YEAR

WATER YEARS 1990 - 1993

| | | | |
|--------------------------|--------|--------|-------|
| ANNUAL TOTAL | 119.58 | 86.22 | |
| ANNUAL MEAN | .33 | .24 | .56 |
| HIGHEST ANNUAL MEAN | | | 1.22 |
| LOWEST ANNUAL MEAN | | | .23 |
| HIGHEST DAILY MEAN | 83 | May 25 | 169 |
| LOWEST DAILY MEAN | .00 | Jan 1 | .00 |
| ANNUAL SEVEN-DAY MINIMUM | .00 | Jan 1 | .00 |
| INSTANTANEOUS PEAK FLOW | | 167 | 860 |
| INSTANTANEOUS PEAK STAGE | | 45.86 | 49.03 |
| ANNUAL RUNOFF (AC-FT) | 237 | 171 | 407 |
| ANNUAL RUNOFF (CFSM) | .061 | .044 | .10 |
| ANNUAL RUNOFF (INCHES) | .82 | .59 | 1.42 |
| 10 PERCENT EXCEEDS | .00 | .00 | .00 |
| 50 PERCENT EXCEEDS | .00 | .00 | .00 |
| 90 PERCENT EXCEEDS | .00 | .00 | .00 |

e Estimated

ST. CROIX, U.S. VIRGIN ISLANDS

50333700 RIVER GUT AT HWY 66 AT FAIRPLAINS, ST. CROIX, VI

LOCATION.--Lat 17°42'31", long 64°47'16", Hydrologic Unit 21020002, 1.00 mi (1.61 km) southeast from Experimental Station, 1.10 mi (1.77 km) southeast from Hwy 70 and Hwy 64 intersection, 0.50 mi (0.80 km) west from Anguila ruins.

DRAINAGE AREA.--5.89 mi² (15.26 km²).

WATER-STAGE RECORDS

PERIOD OF RECORD.--May 1990 to current year.

GAGE.--Water-stage recorder. Elevation of gage is 20 ft (6 m), from topographic map.

REMARKS.--Gage-height and precipitation satellite telemetry at station.

EXTREMES FOR PERIOD OF RECORD.--Maximum gage-height, 15.34 ft (4.676 m), May 25, 1992; minimum recorded, 10.46 ft (3.188 m), many days, but could be lower.

EXTREMES FOR CURRENT YEAR.--Maximum gage-height, 13.91 ft (4.239 m), May 27; minimum recorded, 10.46 ft (3.188 m), many days.

GAGE HEIGHT, FEET, WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993
DAILY MEAN VALUES

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| 1 | 10.46 | 10.44 | 10.42 | 10.56 | 10.46 | 10.47 | 10.44 | 10.45 | 10.46 | 10.46 | 10.46 | 10.46 |
| 2 | 10.46 | 10.44 | 10.42 | 10.47 | 10.46 | 10.46 | 10.44 | 10.45 | 10.46 | 10.46 | 10.46 | 10.46 |
| 3 | 10.46 | 10.44 | 10.42 | 10.46 | 10.47 | 10.45 | 10.44 | 10.48 | 10.46 | 10.46 | 10.46 | 10.46 |
| 4 | 10.47 | 10.46 | 10.44 | 10.46 | 10.46 | 10.45 | 10.45 | 10.45 | 10.46 | 10.46 | 10.46 | 10.46 |
| 5 | 10.47 | 10.44 | 10.46 | 10.46 | 10.47 | 10.44 | 10.45 | 10.45 | 10.46 | 10.46 | 10.46 | 10.46 |
| 6 | 10.47 | 10.44 | 10.46 | 10.46 | 10.46 | 10.46 | 10.45 | 10.45 | 10.46 | 10.46 | 10.46 | 10.46 |
| 7 | 10.46 | 10.44 | 10.46 | 10.46 | 10.46 | 10.46 | 10.45 | 10.46 | 10.46 | 10.46 | 10.46 | 10.46 |
| 8 | 10.46 | 10.44 | 10.46 | 10.46 | 10.46 | 10.45 | 10.45 | 10.46 | 10.46 | 10.46 | 10.46 | 10.46 |
| 9 | 10.46 | 10.44 | 10.47 | 10.46 | 10.46 | 10.45 | 10.45 | 10.52 | 10.46 | 10.46 | 10.45 | 10.46 |
| 10 | 10.46 | 10.44 | 10.46 | 10.46 | 10.46 | 10.44 | 10.45 | 10.45 | 10.46 | 10.46 | 10.45 | 10.46 |
| 11 | 10.46 | 10.44 | 10.46 | 10.46 | 10.46 | 10.44 | 10.45 | 10.45 | 10.46 | 10.46 | 10.45 | 10.46 |
| 12 | 10.46 | 10.44 | 10.47 | 10.46 | 10.46 | 10.44 | 10.45 | 10.45 | 10.46 | 10.46 | 10.45 | 10.46 |
| 13 | 10.46 | 10.43 | 10.47 | 10.46 | 10.46 | 10.44 | 10.45 | 10.45 | 10.46 | 10.46 | 10.45 | 10.46 |
| 14 | 10.45 | 10.43 | 10.46 | 10.46 | 10.46 | 10.44 | 10.45 | 10.45 | 10.46 | 10.46 | 10.45 | 10.46 |
| 15 | 10.45 | 10.47 | 10.46 | 10.46 | 10.46 | 10.44 | 10.45 | 10.45 | 10.46 | 10.46 | 10.49 | 10.46 |
| 16 | 10.45 | 10.43 | 10.46 | 10.46 | 10.46 | 10.45 | 10.45 | 10.45 | 10.46 | 10.46 | 10.46 | 10.46 |
| 17 | 10.45 | 10.44 | 10.46 | 10.46 | 10.46 | 10.45 | 10.45 | 10.44 | 10.46 | 10.45 | 10.46 | 10.46 |
| 18 | 10.45 | 10.43 | 10.46 | 10.46 | 10.46 | 10.45 | 10.45 | 10.44 | 10.46 | 10.46 | 10.46 | 10.46 |
| 19 | 10.46 | 10.43 | 10.46 | 10.46 | 10.46 | 10.44 | 10.45 | 10.45 | 10.49 | 10.45 | 10.46 | 10.46 |
| 20 | 10.45 | 10.43 | 10.46 | 10.46 | 10.45 | 10.44 | 10.45 | 10.45 | 10.48 | 10.45 | 10.46 | 10.46 |
| 21 | 10.45 | 10.84 | 10.46 | 10.46 | 10.46 | 10.44 | 10.45 | 10.45 | 10.46 | 10.46 | 10.46 | 10.46 |
| 22 | 10.45 | 11.18 | 10.46 | 10.46 | 10.46 | 10.45 | 10.45 | 10.45 | 10.46 | 10.46 | 10.46 | 10.46 |
| 23 | 10.45 | 10.44 | 10.46 | 10.46 | 10.46 | 10.45 | 10.45 | 10.45 | 10.46 | 10.57 | 10.46 | 10.46 |
| 24 | 10.45 | 10.44 | 10.46 | 10.46 | 10.46 | 10.44 | 10.45 | 10.45 | 10.46 | 10.50 | 10.46 | 10.46 |
| 25 | 10.45 | 10.43 | 10.46 | 10.46 | 10.46 | 10.44 | 10.45 | 10.45 | 10.46 | 10.46 | 10.46 | 10.46 |
| 26 | 10.45 | 10.43 | 10.46 | 10.46 | 10.46 | 10.44 | 10.45 | 10.53 | 10.46 | 10.46 | 10.46 | 10.46 |
| 27 | 10.45 | 10.43 | 10.46 | 10.46 | 10.46 | 10.44 | 10.45 | 11.44 | 10.46 | 10.46 | 10.46 | 10.46 |
| 28 | 10.45 | 10.42 | 10.46 | 10.46 | 10.47 | 10.45 | 10.45 | 11.25 | 10.46 | 10.46 | 10.46 | 10.46 |
| 29 | 10.44 | 10.43 | 10.47 | 10.46 | --- | 10.45 | 10.44 | 10.81 | 10.46 | 10.46 | 10.46 | 10.46 |
| 30 | 10.44 | 10.42 | 10.72 | 10.46 | --- | 10.44 | 10.45 | 10.52 | 10.46 | 10.46 | 10.46 | 10.47 |
| 31 | 10.44 | --- | 11.10 | 10.46 | --- | 10.44 | --- | 10.46 | --- | 10.46 | 10.46 | --- |
| MEAN | 10.45 | 10.47 | 10.49 | 10.46 | 10.46 | 10.45 | 10.45 | 10.53 | 10.46 | 10.46 | 10.46 | 10.46 |
| MAX | 10.47 | 11.18 | 11.10 | 10.56 | 10.47 | 10.47 | 10.45 | 11.44 | 10.49 | 10.57 | 10.49 | 10.47 |
| MIN | 10.44 | 10.42 | 10.42 | 10.46 | 10.45 | 10.44 | 10.44 | 10.44 | 10.46 | 10.45 | 10.45 | 10.46 |

50334500 BETHLEHEM GUT AT HWY 66 AT FAIRPLAINS, ST.CROIX, VI

LOCATION.--Lat 17°42'31", long 64°47'15", Hydrologic Unit 21020002, 1.00 mi (1.61 km) southeast from Experimental Station, 1.10 mi (1.77 km) southeast from Hwy 70 and Hwy 64 intersection, 0.50 mi (0.80 km) west from Anguilla ruins.

DRAINAGE AREA.--4.11 mi² (10.64 km²).

WATER-STAGE RECORDS

PERIOD OF RECORD.--1963 to 1969 monthly measurements only, May 1990 to current year. Prior to 1990 published as Bethlehem Gut at upper Bethlehem.

GAGE.--Water-stage recorder. Elevation of gage is 20 ft (6 m), from topographic map.

REMARKS.--Gage-height and precipitation satellite telemetry at station. All gage-height of 11.45 ft or lower are considered zero flow.

EXTREMES FOR PERIOD OF RECORD.--Maximum gage-height, 19.28 ft (5.876 m), May 25, 1992; minimum, 11.45 ft (3.490 m), many days, but could be lower.

EXTREMES FOR CURRENT YEAR.--Maximum gage-height, 16.74 ft (5.102 m), May 27; minimum, 11.45 ft (3.490 m), many days.

GAGE HEIGHT, FEET, WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993
DAILY MEAN VALUES

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| 1 | 11.45 | 11.45 | 12.13 | 12.53 | 11.45 | 11.45 | 11.44 | 11.44 | 12.37 | 11.49 | 11.55 | 11.45 |
| 2 | 11.45 | 11.45 | 12.05 | 12.36 | 11.45 | 11.45 | 11.44 | 11.44 | 12.31 | 11.49 | 11.47 | 11.45 |
| 3 | 11.45 | 11.45 | 11.99 | 12.30 | 11.46 | 11.45 | 11.44 | 11.52 | 12.24 | 11.48 | 11.45 | 11.45 |
| 4 | 11.45 | 11.45 | 11.90 | 12.28 | 11.45 | 11.45 | 11.44 | 11.44 | 12.18 | 11.48 | 11.45 | 11.45 |
| 5 | 11.45 | 11.45 | 11.81 | 12.23 | 11.46 | 11.45 | 11.44 | 11.44 | 12.10 | 11.48 | 11.45 | 11.45 |
| 6 | 11.45 | 11.45 | 11.73 | 12.18 | 11.45 | 11.45 | 11.44 | 11.44 | 12.03 | 11.48 | 11.45 | 11.45 |
| 7 | 11.45 | 11.45 | 11.66 | 12.11 | 11.45 | 11.45 | 11.44 | 11.44 | 11.97 | 11.48 | 11.45 | 11.45 |
| 8 | 11.45 | 11.45 | 11.59 | 12.04 | 11.45 | 11.44 | 11.44 | 11.44 | 11.90 | 11.48 | 11.45 | 11.45 |
| 9 | 11.45 | 11.45 | 11.59 | 11.97 | 11.45 | 11.44 | 11.44 | 11.44 | 11.84 | 11.48 | 11.45 | 11.45 |
| 10 | 11.45 | 11.45 | 11.60 | 11.91 | 11.45 | 11.44 | 11.44 | 12.89 | 11.78 | 11.48 | 11.45 | 11.45 |
| 11 | 11.45 | 11.45 | 11.54 | 11.84 | 11.45 | 11.44 | 11.44 | 12.47 | 11.70 | 11.49 | 11.44 | 11.45 |
| 12 | 11.45 | 11.45 | 11.53 | 11.79 | 11.45 | 11.44 | 11.44 | 12.19 | 11.65 | 11.47 | 11.45 | 11.45 |
| 13 | 11.45 | 11.45 | 11.61 | 11.73 | 11.45 | 11.44 | 11.44 | 12.02 | 11.60 | 11.45 | 11.45 | 11.45 |
| 14 | 11.45 | 11.45 | 11.57 | 11.69 | 11.45 | 11.44 | 11.44 | 11.88 | 11.55 | 11.45 | 11.45 | 11.45 |
| 15 | 11.45 | 11.73 | 11.52 | 11.64 | 11.45 | 11.44 | 11.44 | 11.75 | 11.50 | 11.45 | 11.45 | 11.45 |
| 16 | 11.45 | 12.16 | 11.46 | 11.59 | 11.45 | 11.44 | 11.44 | 11.62 | 11.48 | 11.45 | 11.45 | 11.45 |
| 17 | 11.45 | 11.99 | 11.45 | 11.55 | 11.45 | 11.44 | 11.44 | 11.44 | 11.48 | 11.45 | 11.45 | 11.45 |
| 18 | 11.45 | 12.66 | 11.45 | 11.51 | 11.45 | 11.44 | 11.44 | 11.44 | 11.48 | 11.45 | 11.45 | 11.45 |
| 19 | 11.45 | 12.64 | 11.45 | 11.46 | 11.46 | 11.44 | 11.44 | 11.44 | 11.51 | 11.45 | 11.45 | 11.45 |
| 20 | 11.45 | 13.00 | 11.45 | 11.45 | 11.45 | 11.44 | 11.44 | 11.44 | 11.61 | 11.45 | 11.45 | 11.45 |
| 21 | 11.45 | 13.00 | 11.45 | 11.45 | 11.45 | 11.44 | 11.44 | 11.44 | 11.58 | 11.45 | 11.45 | 11.45 |
| 22 | 11.45 | 13.70 | 11.45 | 11.45 | 11.45 | 11.44 | 11.44 | 11.44 | 11.54 | 11.45 | 11.45 | 11.45 |
| 23 | 11.45 | 12.71 | 11.45 | 11.45 | 11.45 | 11.44 | 11.44 | 11.44 | 11.50 | 11.72 | 11.45 | 11.45 |
| 24 | 11.45 | 12.52 | 11.45 | 11.46 | 11.45 | 11.44 | 11.44 | 11.44 | 11.49 | 12.29 | 11.45 | 11.45 |
| 25 | 11.45 | 12.34 | 11.45 | 11.45 | 11.45 | 11.44 | 11.44 | 11.44 | 11.48 | 12.32 | 11.45 | 11.45 |
| 26 | 11.45 | 12.26 | 11.45 | 11.45 | 11.45 | 11.44 | 11.44 | 12.76 | 11.48 | 12.17 | 11.45 | 11.45 |
| 27 | 11.45 | 12.27 | 11.45 | 11.45 | 11.45 | 11.44 | 11.44 | 14.08 | 11.48 | 12.05 | 11.45 | 11.45 |
| 28 | 11.45 | 12.25 | 11.45 | 11.45 | 11.45 | 11.44 | 11.44 | 14.27 | 11.48 | 11.94 | 11.45 | 11.45 |
| 29 | 11.45 | 12.20 | 11.45 | 11.45 | --- | 11.44 | 11.44 | 12.91 | 11.48 | 11.82 | 11.45 | 11.45 |
| 30 | 11.45 | 12.18 | 12.81 | 11.45 | --- | 11.44 | 11.44 | 12.64 | 11.48 | 11.72 | 11.45 | 11.45 |
| 31 | 11.45 | --- | 12.92 | 11.45 | --- | 11.44 | --- | 12.43 | --- | 11.63 | 11.45 | --- |
| MEAN | 11.45 | 12.00 | 11.67 | 11.75 | 11.45 | 11.44 | 11.44 | 11.93 | 11.71 | 11.61 | 11.45 | 11.45 |
| MAX | 11.45 | 13.70 | 12.92 | 12.53 | 11.46 | 11.45 | 11.44 | 14.27 | 12.37 | 12.32 | 11.55 | 11.45 |
| MIN | 11.45 | 11.45 | 11.45 | 11.45 | 11.45 | 11.44 | 11.44 | 11.44 | 11.48 | 11.45 | 11.44 | 11.45 |

ST. CROIX, U.S. VIRGIN ISLANDS

50337500 GUT 4.5 AT CANE VALLEY, ST. CROIX, VI

LOCATION.--Lat 17°43'25", long 66°51'01", Hydrologic Unit 21020002, 2.1 mi (3.4 km) northeast from St. Patrick's School at Frederiksted, 1.6 mi (2.6 km) northeast from Zion Church on Centerline road and 1.2 mi (2.0 km) from Mother of Perpetual Help Church near Monpedlier road 76.

DRAINAGE AREA.--0.21 mi² (0.54 km²).

WATER-STAGE RECORDS

PERIOD OF RECORD.--October 1991 to current year. (discontinued)

GAGE.--Water-stage recorder. Elevation of gage is 300 ft (91 m), from topographic map.

REMARKS.--Gage-height and precipitation satellite telemetry at station. All gage-height of 49.28 ft or lower are considered zero flow.

EXTREMES FOR PERIOD OF RECORD.--Maximum gage-height, 50.65 ft (15.438 m), May 24, 1992; minimum, 49.27 ft (15.017 m), many days.

EXTREMES FOR CURRENT YEAR.--Maximum gage-height 49.96 ft (15.227 m), July 23; minimum, 49.27 ft (15.107 m), many days.

GAGE HEIGHT, FEET, WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993
DAILY MEAN VALUES

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-----|-----|
| 1 | 49.34 | 49.29 | 49.29 | 49.41 | 49.27 | --- | 49.28 | 49.29 | 49.28 | 49.30 | | |
| 2 | 49.28 | 49.29 | 49.29 | 49.33 | 49.27 | 49.28 | 49.28 | 49.29 | 49.28 | 49.31 | | |
| 3 | 49.28 | 49.29 | 49.29 | 49.29 | 49.27 | 49.28 | 49.28 | 49.29 | 49.28 | 49.31 | | |
| 4 | 49.28 | 49.29 | 49.29 | 49.29 | 49.27 | 49.28 | 49.28 | 49.29 | 49.28 | 49.31 | | |
| 5 | 49.28 | 49.29 | 49.29 | 49.29 | 49.27 | 49.28 | 49.28 | 49.29 | 49.28 | 49.31 | | |
| 6 | 49.28 | 49.29 | 49.29 | 49.29 | 49.27 | 49.28 | 49.28 | 49.29 | 49.28 | 49.31 | | |
| 7 | 49.28 | 49.29 | 49.29 | 49.29 | 49.27 | 49.28 | 49.28 | 49.29 | 49.28 | 49.31 | | |
| 8 | 49.29 | 49.29 | 49.29 | 49.29 | 49.27 | 49.28 | 49.28 | 49.29 | --- | 49.30 | | |
| 9 | 49.29 | 49.29 | 49.29 | 49.29 | 49.27 | 49.28 | 49.28 | 49.39 | --- | 49.30 | | |
| 10 | 49.29 | 49.29 | 49.29 | --- | 49.28 | 49.28 | 49.28 | 49.30 | 49.28 | 49.30 | | |
| 11 | 49.29 | 49.29 | 49.29 | 49.29 | 49.28 | 49.28 | 49.28 | 49.29 | 49.28 | 49.31 | | |
| 12 | 49.29 | 49.29 | 49.40 | 49.28 | 49.28 | 49.28 | 49.28 | 49.29 | 49.28 | 49.31 | | |
| 13 | 49.29 | 49.29 | 49.37 | 49.28 | 49.28 | 49.28 | 49.28 | 49.29 | 49.28 | 49.31 | | |
| 14 | 49.29 | 49.29 | 49.29 | 49.28 | 49.28 | 49.28 | 49.28 | 49.29 | 49.28 | 49.31 | | |
| 15 | 49.29 | 49.52 | 49.29 | 49.27 | 49.28 | 49.28 | 49.28 | 49.29 | 49.29 | 49.31 | | |
| 16 | 49.29 | 49.60 | 49.29 | 49.27 | 49.28 | 49.28 | 49.28 | 49.29 | 49.29 | 49.31 | | |
| 17 | 49.29 | 49.77 | 49.29 | 49.27 | 49.28 | 49.28 | 49.28 | 49.29 | 49.29 | 49.31 | | |
| 18 | 49.29 | 49.65 | 49.29 | 49.27 | 49.28 | 49.28 | 49.28 | 49.29 | 49.29 | 49.31 | | |
| 19 | 49.29 | 49.46 | 49.29 | 49.27 | 49.28 | 49.28 | 49.28 | 49.29 | 49.29 | 49.31 | | |
| 20 | 49.29 | 49.30 | 49.29 | 49.27 | 49.28 | 49.28 | 49.28 | 49.29 | 49.29 | 49.32 | | |
| 21 | 49.29 | 49.34 | 49.29 | 49.27 | --- | 49.28 | 49.28 | 49.29 | 49.29 | 49.31 | | |
| 22 | 49.29 | 49.57 | 49.29 | 49.27 | --- | 49.28 | 49.29 | 49.29 | 49.30 | 49.32 | | |
| 23 | 49.29 | 49.35 | 49.29 | 49.27 | --- | 49.28 | 49.29 | 49.29 | 49.29 | 49.66 | | |
| 24 | 49.29 | 49.31 | 49.29 | 49.27 | --- | 49.28 | 49.29 | 49.29 | 49.30 | 49.57 | | |
| 25 | 49.29 | 49.29 | 49.29 | 49.27 | --- | 49.28 | 49.29 | 49.29 | 49.31 | --- | | |
| 26 | 49.29 | 49.29 | 49.29 | 49.27 | --- | 49.28 | 49.29 | 49.29 | 49.31 | --- | | |
| 27 | 49.29 | 49.37 | 49.29 | 49.27 | --- | 49.28 | 49.29 | 49.29 | 49.31 | --- | | |
| 28 | 49.29 | 49.29 | 49.29 | 49.27 | --- | 49.28 | 49.29 | 49.28 | 49.31 | --- | | |
| 29 | 49.29 | 49.33 | 49.34 | 49.27 | --- | 49.28 | 49.29 | 49.28 | 49.30 | --- | | |
| 30 | 49.29 | 49.29 | 49.82 | 49.27 | --- | 49.28 | 49.29 | 49.28 | 49.31 | --- | | |
| 31 | 49.29 | --- | 49.72 | 49.27 | --- | 49.28 | --- | 49.28 | --- | --- | | |
| MEAN | 49.29 | 49.36 | 49.33 | --- | --- | --- | 49.28 | 49.29 | --- | --- | | |
| MAX | 49.34 | 49.77 | 49.82 | --- | --- | --- | 49.29 | 49.39 | --- | --- | | |
| MIN | 49.28 | 49.29 | 49.29 | --- | --- | --- | 49.28 | 49.28 | --- | --- | | |

ST. CROIX, U.S. VIRGIN ISLANDS

50345000 JOLLY HILL GUT AT JOLLY HILL, ST. CROIX, VI

LOCATION.--Lat 17°44'00", long 64°51'47", Hydrologic Unit 21020002, on Mahogany Road at Jolly Hill, 1.8 mi (2.9 km) northeast of Frederiksted.

DRAINAGE AREA.--2.10 mi² (5.44 km²).

WATER-DISCHARGE RECORDS

PERIOD OF RECORD.--January 1963 to December 1968. Monthly measurements, 1962-69. October 1982 to current year.

GAGE.--Water-stage recorder, crest-stage gage and sharp-crested concrete control. Elevation of gage is 140 ft (43 m), from topographic map.

REMARKS.--Records poor. Low-water diversions upstream from station. Gage-height and precipitation satellite telemetry at station.

DISCHARGE, CUBIC FEET PER SECOND, WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993
DAILY MEAN VALUES

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|-------|------|------|-------|-------|-------|------|------|------|------|------|------|------|
| 1 | .07 | .04 | .15 | e.27 | .46 | .14 | .03 | .03 | .05 | .07 | .15 | .04 |
| 2 | .02 | .00 | .14 | e.28 | .46 | .11 | .03 | .02 | .05 | .07 | .13 | .04 |
| 3 | .00 | .00 | .14 | e.23 | .52 | .09 | .02 | .05 | .05 | .07 | .11 | .03 |
| 4 | .00 | .10 | .15 | e.11 | .48 | .10 | .02 | .04 | .05 | .07 | .08 | .04 |
| 5 | .00 | .02 | .16 | e.12 | .50 | .09 | .03 | .03 | .05 | .06 | .11 | .04 |
| 6 | .00 | .00 | .16 | e.30 | .53 | .09 | .04 | .03 | .05 | .06 | .10 | .04 |
| 7 | .00 | .00 | .18 | e.41 | .55 | .09 | .03 | .03 | .06 | .06 | .09 | .04 |
| 8 | .00 | .00 | .19 | .41 | .57 | .08 | .03 | .03 | .07 | .06 | .08 | .04 |
| 9 | .00 | .00 | .20 | .41 | .56 | .08 | .06 | .09 | .08 | .05 | .08 | .04 |
| 10 | .01 | .00 | .18 | .41 | .51 | .08 | .07 | .07 | .09 | .05 | .08 | e.04 |
| 11 | .00 | .00 | .18 | .41 | .49 | .08 | .08 | .04 | .09 | .06 | .07 | e.02 |
| 12 | .00 | .00 | .22 | .41 | .47 | .10 | .11 | .03 | .09 | .06 | .07 | e.02 |
| 13 | .00 | .00 | .21 | .41 | .43 | .11 | .09 | .03 | .08 | .07 | .07 | e.02 |
| 14 | .00 | .08 | .20 | .43 | .41 | .10 | .10 | .03 | .08 | .07 | .07 | e.02 |
| 15 | .00 | .18 | .20 | .43 | .39 | .09 | .10 | .03 | .08 | .07 | .07 | e.02 |
| 16 | .00 | .13 | .20 | e.41 | .38 | .09 | .11 | .03 | .07 | .07 | .07 | e.03 |
| 17 | .00 | .14 | .21 | e.41 | .37 | .09 | .12 | .03 | .07 | .06 | .06 | e.03 |
| 18 | .00 | .14 | .22 | e.40 | .34 | .09 | .13 | .03 | .07 | .06 | .05 | e.01 |
| 19 | .00 | .13 | .22 | e.40 | .32 | .08 | .18 | .03 | .09 | .06 | .05 | e.01 |
| 20 | .00 | .10 | .22 | .46 | .30 | .08 | .20 | .03 | .19 | .05 | .05 | e.01 |
| 21 | .00 | .10 | .20 | .46 | .29 | .08 | .22 | .03 | .08 | .05 | .05 | e.01 |
| 22 | .00 | .12 | .18 | .47 | .26 | .08 | .19 | .04 | .08 | .05 | .05 | e.01 |
| 23 | .00 | .09 | e.18 | .47 | .25 | .08 | .14 | .06 | .08 | .98 | .05 | .01 |
| 24 | .00 | .09 | e.22 | .46 | .22 | .09 | .10 | .08 | .07 | .57 | .05 | .01 |
| 25 | .00 | .08 | e.24 | .45 | .19 | .09 | .07 | .08 | .07 | .44 | .06 | .01 |
| 26 | .00 | .08 | e.23 | .46 | .17 | .09 | .04 | .16 | .07 | .38 | .05 | .01 |
| 27 | .00 | .14 | e.24 | .47 | .16 | .09 | .02 | .07 | .07 | .35 | .04 | .01 |
| 28 | .00 | .14 | e.21 | .46 | .14 | .10 | .01 | .05 | .07 | .31 | .04 | .02 |
| 29 | .00 | .15 | e1.5 | .46 | --- | .11 | .02 | .04 | .07 | .28 | .04 | .01 |
| 30 | .00 | .13 | e4.5 | .46 | --- | .07 | .04 | .04 | .07 | .21 | .04 | .04 |
| 31 | .00 | --- | e.45 | .46 | --- | .03 | --- | .04 | --- | .18 | .04 | --- |
| TOTAL | 0.10 | 2.18 | 11.88 | 12.20 | 10.72 | 2.77 | 2.43 | 1.42 | 2.24 | 5.05 | 2.15 | 0.72 |
| MEAN | .003 | .073 | .38 | .39 | .38 | .089 | .081 | .046 | .075 | .16 | .069 | .024 |
| MAX | .07 | .18 | 4.5 | .47 | .57 | .14 | .22 | .16 | .19 | .98 | .15 | .04 |
| MIN | .00 | .00 | .14 | .11 | .14 | .03 | .01 | .02 | .05 | .05 | .04 | .01 |
| AC-FT | .2 | 4.3 | 24 | 24 | 21 | 5.5 | 4.8 | 2.8 | 4.4 | 10 | 4.3 | 1.4 |
| CFSM | .00 | .03 | .18 | .19 | .18 | .04 | .04 | .02 | .04 | .08 | .03 | .01 |
| IN. | .00 | .04 | .21 | .22 | .19 | .05 | .04 | .03 | .04 | .09 | .04 | .01 |

STATISTICS OF MONTHLY MEAN DATA FOR WATER YEARS 1986 - 1993, BY WATER YEAR (WY)

| MEAN | .61 | .88 | .62 | .34 | .22 | .11 | .084 | .13 | .25 | .10 | .043 | .31 |
|------|------|------|------|------|------|------|------|------|------|------|------|------|
| MAX | 2.14 | 2.33 | 2.34 | .88 | .55 | .34 | .23 | .46 | 1.43 | .52 | .18 | 2.15 |
| (WY) | 1991 | 1988 | 1988 | 1988 | 1988 | 1990 | 1990 | 1992 | 1987 | 1987 | 1987 | 1989 |
| MIN | .000 | .000 | .000 | .000 | .000 | .000 | .000 | .000 | .000 | .000 | .000 | .000 |
| (WY) | 1987 | 1992 | 1992 | 1992 | 1989 | 1989 | 1989 | 1989 | 1989 | 1989 | 1989 | 1991 |

SUMMARY STATISTICS

FOR 1992 CALENDAR YEAR

FOR 1993 WATER YEAR

WATER YEARS 1963 - 1993

| | | | |
|--------------------------|-------|--------|-------|
| ANNUAL TOTAL | 38.04 | 53.86 | |
| ANNUAL MEAN | .10 | .15 | .15 |
| HIGHEST ANNUAL MEAN | | | .58 |
| LOWEST ANNUAL MEAN | | | .0003 |
| HIGHEST DAILY MEAN | 12 | May 24 | 22 |
| LOWEST DAILY MEAN | .00 | Jan 1 | .00 |
| ANNUAL SEVEN-DAY MINIMUM | .00 | Jan 1 | .00 |
| INSTANTANEOUS PEAK FLOW | | | 8.1 |
| INSTANTANEOUS PEAK STAGE | | | 1.52 |
| ANNUAL RUNOFF (AC-FT) | 75 | 107 | 138 |
| ANNUAL RUNOFF (CFSM) | .049 | .070 | .071 |
| ANNUAL RUNOFF (INCHES) | .67 | .95 | 1.23 |
| 10 PERCENT EXCEEDS | .21 | .41 | .76 |
| 50 PERCENT EXCEEDS | .00 | .08 | .05 |
| 90 PERCENT EXCEEDS | .00 | .00 | .00 |

e Estimated

ST. CROIX, U.S. VIRGIN ISLANDS

50348000 SALT RIVER AT CANNAN, ST. CROIX, VI

LOCATION.--Lat 17°45'40", long 64°47'53", Hydrologic Unit 21020002, 6.20 mi (9.98 km) northwest from Cristianted Government House, 4.15 mi (6.68 km) north from Alexander Hamilton Airport main building, 3.10 mi (4.99 km) northeast from St. Lukes church at Grove Place.

DRAINAGE AREA.--0.36 mi² (0.93 km²).

WATER-STAGE RECORDS

PERIOD OF RECORD.--September 1991 to current year (discontinued).

GAGE.--Water-stage recorder. Datum of gage is 315 ft (96 m), from topographic map.

REMARKS.--Gage-height and precipitation satellite telemetry at station. All gage-heights of 49.02 ft or lower are considered zero flow.

EXTREMES FOR PERIOD OF RECORD.--Maximum gage-height, 51.20 ft (15.606 m), May 24, 1992; minimum recorded, 48.90 ft (14.905 m), June 24, 25, 1993.

EXTREMES FOR CURRENT YEAR.--Maximum gage-height, 50.20 ft (15.301 m), May 27; minimum recorded, 48.90 ft (14.905 m), June 24, 25.

GAGE HEIGHT, FEET, WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993
DAILY MEAN VALUES

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| 1 | 49.06 | 49.00 | 48.99 | 48.96 | 48.94 | 48.98 | 48.95 | 48.97 | 48.95 | 48.92 | --- | 48.93 |
| 2 | 49.06 | 48.99 | 48.96 | 48.96 | 48.93 | 48.98 | 48.95 | 48.97 | 48.95 | 48.92 | --- | 48.93 |
| 3 | 49.07 | 49.00 | 48.93 | 48.96 | 48.93 | 48.97 | 48.95 | 48.97 | 48.95 | 48.92 | --- | 48.93 |
| 4 | 49.07 | 48.99 | 48.93 | 48.96 | 48.93 | 48.98 | 48.95 | 48.97 | 48.95 | 48.92 | 48.92 | 48.93 |
| 5 | 49.07 | 48.99 | 48.93 | 48.96 | 48.93 | 48.98 | 48.95 | 48.97 | 48.95 | 48.93 | 48.92 | 48.93 |
| 6 | 49.05 | --- | 48.93 | 48.99 | 48.93 | 48.98 | 48.95 | 48.97 | 48.95 | 48.93 | 48.89 | 48.93 |
| 7 | 49.04 | 48.99 | 48.93 | 49.04 | 48.93 | 48.98 | 48.95 | 48.95 | 48.95 | 48.93 | 48.89 | 48.93 |
| 8 | 49.02 | 48.98 | 48.93 | 49.04 | 48.93 | 48.98 | 48.95 | 48.95 | 48.93 | 48.93 | 48.89 | 48.93 |
| 9 | 49.02 | 48.98 | 48.93 | 49.04 | 48.93 | 48.97 | 48.95 | 48.95 | 48.91 | 48.93 | 48.89 | 48.94 |
| 10 | 49.00 | 48.98 | 48.93 | 49.04 | 48.93 | 48.97 | 48.94 | 48.95 | 48.91 | 48.93 | 48.89 | 48.94 |
| 11 | 49.00 | 48.99 | 48.93 | 49.03 | 48.93 | 48.97 | 48.94 | 48.95 | 48.91 | 48.93 | 48.89 | --- |
| 12 | 49.00 | 48.99 | 48.93 | 49.03 | 48.94 | 48.97 | 48.95 | 48.95 | 48.91 | 48.93 | 48.89 | --- |
| 13 | 49.00 | 48.99 | 48.93 | 49.04 | 48.94 | 48.97 | 48.95 | 48.95 | 48.91 | 48.93 | 48.89 | --- |
| 14 | 49.00 | 48.99 | 48.93 | 48.97 | 48.94 | 48.97 | 48.95 | 48.95 | 48.91 | 48.93 | 48.89 | --- |
| 15 | 48.98 | 48.99 | 48.93 | 48.92 | 48.94 | 48.97 | 48.95 | 48.95 | 48.91 | 48.93 | 48.89 | --- |
| 16 | --- | --- | 48.93 | 48.92 | 48.95 | 48.97 | 48.95 | 48.95 | 48.91 | 48.93 | 48.89 | --- |
| 17 | --- | 48.98 | 48.93 | 48.92 | 48.94 | 48.97 | 48.95 | 48.95 | 48.91 | 48.93 | 48.89 | --- |
| 18 | --- | 48.98 | 48.93 | 48.92 | 48.92 | 48.97 | 48.95 | 48.95 | 48.91 | 48.93 | 48.92 | --- |
| 19 | 49.01 | 49.14 | 48.93 | 48.92 | 48.94 | 48.97 | 48.95 | 48.95 | 48.91 | 48.93 | 48.93 | --- |
| 20 | 49.00 | 49.02 | 48.93 | 48.92 | 48.96 | 48.97 | 48.95 | 48.95 | 48.91 | --- | 48.93 | --- |
| 21 | 49.00 | 48.98 | 48.94 | 48.92 | 48.97 | 48.96 | 48.95 | 48.95 | 48.91 | --- | 48.93 | --- |
| 22 | 49.00 | 48.98 | 48.94 | 48.92 | 48.97 | 48.96 | 48.96 | 48.95 | 48.91 | --- | 48.93 | 48.94 |
| 23 | 49.00 | 48.99 | 48.94 | 48.92 | 48.97 | 48.96 | 48.96 | 48.95 | 48.91 | --- | 48.93 | 48.94 |
| 24 | 49.01 | 48.98 | 48.94 | 48.92 | 48.97 | 48.96 | 48.96 | 48.95 | 48.90 | --- | 48.93 | 48.95 |
| 25 | 49.00 | 48.99 | 48.94 | 48.92 | 48.97 | 48.96 | 48.96 | 48.95 | 48.91 | --- | 48.93 | 48.95 |
| 26 | 49.00 | 48.95 | 48.94 | 48.93 | 48.97 | 48.96 | 48.96 | 49.01 | 48.92 | --- | 48.94 | 48.94 |
| 27 | 48.99 | 48.98 | 48.94 | 48.94 | --- | 48.96 | 48.96 | 49.24 | 48.92 | --- | 48.94 | 48.94 |
| 28 | 49.00 | 48.99 | 48.94 | 48.94 | --- | 48.96 | 48.96 | 49.07 | 48.92 | --- | 48.94 | 48.94 |
| 29 | 49.00 | --- | 48.93 | 48.94 | --- | 48.96 | 48.96 | 48.95 | 48.92 | --- | 48.93 | 48.94 |
| 30 | 48.99 | 48.98 | 48.95 | 48.94 | --- | 48.96 | 48.96 | 48.95 | 48.92 | --- | 48.93 | 48.94 |
| 31 | 48.99 | --- | 48.96 | 48.94 | --- | 48.96 | --- | 48.95 | --- | --- | 48.93 | --- |
| MEAN | --- | --- | 48.94 | 48.96 | --- | 48.97 | 48.95 | 48.97 | 48.92 | --- | --- | --- |
| MAX | --- | --- | 48.99 | 49.04 | --- | 48.98 | 48.96 | 49.24 | 48.95 | --- | --- | --- |
| MIN | --- | --- | 48.93 | 48.92 | --- | 48.96 | 48.94 | 48.95 | 48.90 | --- | --- | --- |

ST. CROIX, U.S. VIRGIN ISLANDS

525

50349000 GUT 10 NEAR ALTONA, ST. CROIX, VI

LOCATION.--Lat 17°44'00", long 64°41'30", Hydrologic Unit 21020002, 1.3 mi (2.1 km) southeast of Christiansted, 1.0 mi (1.6 km) west of prospect Hill and 1.0 mi (1.6 km) north of junction of Highways 62 and 85.

DRAINAGE AREA.--0.13 mi² (0.34 km²).

WATER-STAGE RECORDS

PERIOD OF RECORD.--November 1991 to current year. (discontinued)

GAGE.--Water-stage recorder. Elevation of gage is 210 ft (64 m), from topographic map.

REMARKS.--Gage-height and precipitation satellite telemetry at station. All gage-height of 49.57 ft or lower are considered zero flow.

EXTREMES FOR PERIOD OF RECORD.--Maximum gage-height, 50.80 ft (15.484 m), May 25, 1992; minimum, 49.50 ft (15.088 m), Dec. 12, 22, 1992.

EXTREMES FOR CURRENT PERIOD.--Maximum gage-height, 49.58 ft (15.112 m), Dec. 4-14; minimum recorded, 49.52 ft (15.094 m), Feb. 10, 11.

GAGE HEIGHT, FEET, WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993
DAILY MEAN VALUES

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|------|-------|-------|-------|-------|-------|-----|-----|-----|-----|-----|-----|-----|
| 1 | 49.57 | 49.55 | 49.57 | 49.57 | 49.56 | | | | | | | |
| 2 | 49.57 | 49.55 | 49.57 | 49.57 | 49.56 | | | | | | | |
| 3 | 49.59 | 49.55 | 49.57 | 49.57 | 49.56 | | | | | | | |
| 4 | 49.57 | 49.55 | 49.57 | 49.56 | 49.56 | | | | | | | |
| 5 | 49.57 | 49.56 | 49.58 | 49.56 | 49.56 | | | | | | | |
| 6 | 49.57 | 49.56 | 49.58 | 49.56 | 49.56 | | | | | | | |
| 7 | 49.55 | 49.56 | 49.58 | 49.57 | 49.56 | | | | | | | |
| 8 | 49.56 | 49.56 | 49.58 | 49.56 | 49.56 | | | | | | | |
| 9 | 49.54 | 49.56 | 49.58 | 49.56 | 49.55 | | | | | | | |
| 10 | 49.54 | 49.56 | 49.58 | 49.56 | 49.53 | | | | | | | |
| 11 | 49.54 | 49.56 | 49.58 | 49.56 | 49.53 | | | | | | | |
| 12 | 49.54 | 49.56 | 49.58 | 49.56 | 49.53 | | | | | | | |
| 13 | 49.54 | 49.56 | 49.58 | 49.56 | 49.53 | | | | | | | |
| 14 | 49.54 | 49.56 | 49.58 | 49.55 | 49.54 | | | | | | | |
| 15 | 49.54 | 49.56 | 49.57 | 49.55 | 49.54 | | | | | | | |
| 16 | 49.54 | 49.56 | 49.57 | 49.55 | 49.54 | | | | | | | |
| 17 | 49.55 | 49.56 | 49.57 | 49.55 | 49.52 | | | | | | | |
| 18 | 49.55 | 49.56 | 49.57 | 49.56 | --- | | | | | | | |
| 19 | 49.55 | 49.56 | 49.57 | 49.56 | --- | | | | | | | |
| 20 | 49.55 | 49.56 | 49.57 | 49.55 | --- | | | | | | | |
| 21 | 49.55 | 49.56 | 49.57 | 49.55 | --- | | | | | | | |
| 22 | 49.55 | 49.56 | 49.57 | 49.55 | --- | | | | | | | |
| 23 | 49.55 | 49.56 | 49.57 | 49.55 | --- | | | | | | | |
| 24 | 49.56 | 49.56 | 49.57 | 49.55 | --- | | | | | | | |
| 25 | 49.56 | 49.57 | 49.57 | 49.55 | --- | | | | | | | |
| 26 | 49.55 | 49.57 | 49.57 | 49.55 | --- | | | | | | | |
| 27 | 49.55 | 49.57 | 49.57 | 49.56 | --- | | | | | | | |
| 28 | 49.56 | 49.57 | 49.57 | 49.56 | --- | | | | | | | |
| 29 | 49.56 | 49.57 | 49.57 | 49.56 | --- | | | | | | | |
| 30 | 49.56 | 49.57 | 49.57 | 49.56 | --- | | | | | | | |
| 31 | 49.55 | --- | 49.57 | 49.56 | --- | | | | | | | |
| MEAN | 49.55 | 49.56 | 49.57 | 49.56 | --- | | | | | | | |
| MAX | 49.59 | 49.57 | 49.58 | 49.57 | --- | | | | | | | |
| MIN | 49.54 | 49.55 | 49.57 | 49.55 | --- | | | | | | | |

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GROUND-WATER LEVELS

ST. CROIX, U.S. VIRGIN ISLANDS

174225064471900. Local number, 1.

LOCATION.--Lat 17°42'25", long 64°47'19", Hydrologic Unit 21020002, 6 mi southwest of Christiansted Plaza, 1.00 mi southeast of the Experimental Station, and 0.50 mi northeast of the Alexander Hamilton Airport entrance on Hwy 64. Owner: U.S. Virgin Islands Government, Name: Fairplains 6 (FP6).

AQUIFER.--Alluvium and marl.

WELL CHARACTERISTICS.--Observation drilled public supply water-table well, diameter 6 in (0.15 m), cased 6 in (0.15 m).

INSTRUMENTATION.--Monthly measurement with chalked steel tape by USGS personnel.

DATUM.--Elevation of land-surface datum is about 20.0 ft (6.10 m) above mean sea level, from topographic map. Measuring point: Top of pump concrete base, 2.20 ft (0.67 m) above land-surface datum.

REMARKS.--Observation well. Water levels affected by pumping.

PERIOD OF RECORD.--March 1982 to current year.

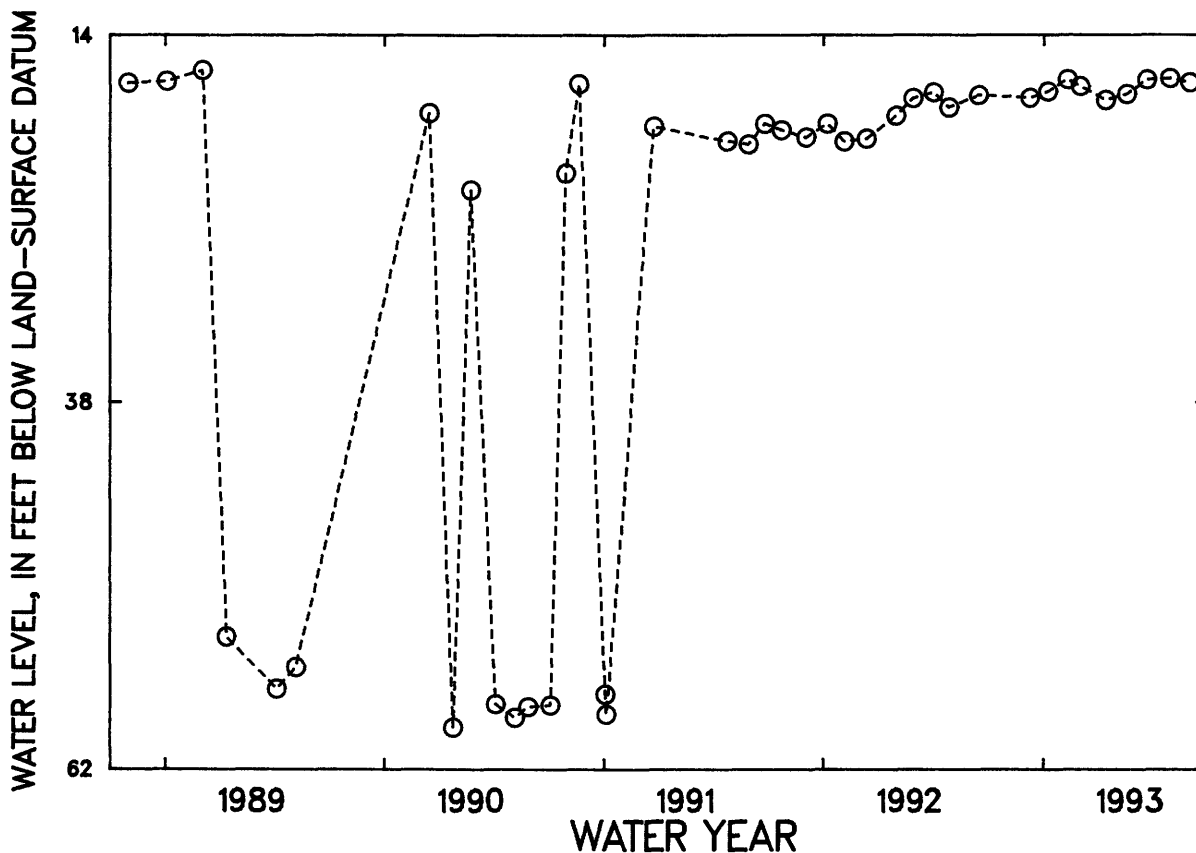
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 15.64 ft (4.77 m) below land-surface datum, Mar. 25, 1982; lowest water level measured, 59.26 ft (18.1 m) below land-surface datum, Apr. 25, 1990.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993
INSTANTANEOUS OBSERVATIONS

| Date | Water level | Date | Water level | Date | Water level | Date | Water level |
|--------|-------------|---------|-------------|---------|-------------|---------|-------------|
| Dec. 8 | 18.12 | Mar. 2 | 17.37 | May 18 | 17.88 | July 29 | 16.84 |
| Jan. 7 | 17.71 | Apr. 13 | 18.27 | June 21 | 16.92 | Aug. 31 | 17.12 |
| Feb. 9 | 16.91 | | | | | | |

WATER YEAR 1993 HIGHEST 16.84 JULY 29, 1993 LOWEST 18.27 APR. 13, 1993

a Pumping.



GROUND-WATER LEVELS

ST. CROIX, U.S. VIRGIN ISLANDS

174225064472000. Local number, 2.

LOCATION.--Lat 17°42'25", long 64°47'20", Hydrologic Unit 21020002, 0.90 mi southeast of the Experimental Station, 0.6 mi southwest of Christiansted Plaza, and 0.18 mi northeast of the Alexander Hamilton Airport entrance on Hwy 64. Owner: U.S. Virgin Islands Government, Name: USGS-10, Fairplains 2 (FP2).

AQUIFER.--Alluvium and marl.

WELL CHARACTERISTICS.--Drilled unused water-table well, diameter 6 in (0.15 m), cased 6 in (0.15 m).

INSTRUMENTATION.--Digital water level recorder--60-minute punch.

DATUM.--Elevation of land-surface datum is about 20 ft (6.10 m) above mean sea level, from topographic map.

Measuring point: Top of 0.5 in (0.01 m) hole at concrete base wall, 3.00 ft (0.91 m) above land-surface datum.

REMARKS.--Recording observation well. Nearby pumping well.

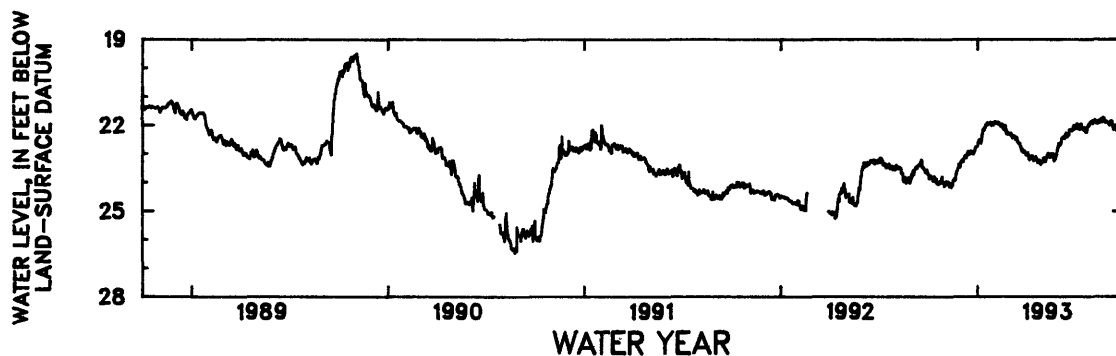
PERIOD OF RECORD.--June 1983 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level recorded, 19.45 ft (5.93 m) below land-surface datum, Nov. 4, 1989; lowest water level recorded, 26.46 ft (8.06 m) below land-surface datum, Aug. 25, 1990.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993
INSTANTANEOUS OBSERVATION AT 1200

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| 1 | 23.73 | 24.07 | 23.28 | 22.65 | 21.95 | 22.32 | 23.05 | 23.31 | 22.67 | 22.03 | 21.89 | 21.97 |
| 2 | 23.75 | 24.04 | 23.30 | 22.58 | 21.88 | 22.29 | 23.03 | 23.28 | 22.66 | 22.10 | 21.94 | 22.01 |
| 3 | 23.88 | 24.02 | 23.22 | 22.54 | 21.92 | 22.27 | 23.03 | 23.15 | 22.70 | 22.02 | 21.83 | 21.99 |
| 4 | 23.78 | 23.97 | 23.25 | 22.56 | 21.88 | 22.33 | 22.97 | 23.19 | 22.67 | 21.95 | 21.87 | 21.96 |
| 5 | 23.77 | 24.01 | 23.28 | 22.51 | 21.92 | 22.39 | 23.06 | 23.26 | 22.57 | 22.00 | 21.90 | 21.87 |
| 6 | 23.80 | 24.07 | 23.19 | 22.55 | 21.94 | 22.45 | 23.19 | 23.13 | 22.48 | 22.12 | 21.88 | 21.86 |
| 7 | 23.84 | 23.97 | 23.10 | 22.62 | 21.90 | 22.36 | 23.22 | 23.28 | 22.44 | 22.01 | 21.81 | 21.85 |
| 8 | 23.82 | 24.07 | 23.11 | 22.46 | 21.90 | 22.39 | 23.21 | 23.17 | 22.44 | 22.04 | 21.87 | 22.00 |
| 9 | 23.83 | 24.11 | 23.06 | 22.29 | 21.91 | 22.38 | 23.16 | 23.12 | 22.45 | 22.14 | 21.93 | 22.08 |
| 10 | 23.95 | 24.16 | 23.11 | 22.22 | 21.96 | 22.39 | 23.12 | 23.05 | 22.40 | 22.06 | 21.91 | 22.16 |
| 11 | 23.82 | 24.09 | 23.13 | 22.14 | 21.99 | 22.44 | 23.07 | 23.09 | 22.47 | 21.96 | 21.94 | 22.04 |
| 12 | 23.80 | 24.03 | 23.05 | 22.18 | 22.02 | 22.50 | 23.10 | 22.98 | 22.40 | 21.96 | 21.89 | 22.06 |
| 13 | 23.88 | 24.18 | 22.98 | 22.13 | 22.04 | 22.50 | 23.08 | 23.10 | 22.32 | 22.13 | 21.85 | 22.12 |
| 14 | 23.97 | 24.09 | 22.93 | 22.08 | 22.05 | 22.43 | 23.19 | 23.11 | 22.27 | 22.09 | 21.89 | 22.14 |
| 15 | 23.90 | 24.13 | 22.99 | 22.02 | 21.96 | 22.49 | 23.25 | 23.01 | 22.35 | 22.11 | 21.91 | 22.18 |
| 16 | 23.88 | 23.97 | 23.02 | 21.98 | 22.02 | 22.59 | 23.16 | 23.11 | 22.41 | 22.12 | 21.82 | 22.14 |
| 17 | 24.03 | 23.91 | 22.93 | 22.00 | 22.10 | 22.60 | 23.17 | 23.07 | 22.38 | 22.18 | 21.88 | 22.23 |
| 18 | 24.02 | 23.95 | 23.00 | 21.93 | 22.00 | 22.64 | 23.12 | 23.01 | 22.32 | 22.08 | 21.83 | 22.19 |
| 19 | 24.06 | 23.86 | 22.91 | 21.92 | 22.16 | 22.63 | 23.11 | 23.02 | 22.34 | 22.11 | 21.77 | 22.12 |
| 20 | 24.06 | 23.95 | 22.93 | 21.98 | 22.12 | 22.65 | 23.23 | 23.09 | 22.16 | 22.22 | 21.88 | 22.15 |
| 21 | 23.97 | 23.80 | 22.95 | 21.94 | 22.01 | 22.73 | 23.20 | 23.00 | 22.15 | 22.25 | 21.85 | 22.12 |
| 22 | 24.03 | 23.70 | 22.97 | 21.94 | 22.13 | 22.81 | 23.27 | 23.17 | 22.16 | 22.25 | 21.83 | 22.17 |
| 23 | 24.03 | 23.62 | 23.01 | 21.97 | 22.30 | 22.87 | 23.32 | 23.25 | 22.16 | 22.13 | 21.73 | 22.23 |
| 24 | 23.96 | 23.58 | 22.99 | 21.90 | 22.21 | 22.92 | 23.27 | 23.10 | 22.18 | 22.05 | 21.75 | 22.27 |
| 25 | 23.96 | 23.53 | 22.92 | 21.90 | 22.26 | 22.85 | 23.23 | 23.18 | 22.20 | 22.05 | 21.82 | 22.19 |
| 26 | 23.88 | 23.46 | 22.89 | 22.01 | 22.32 | 22.93 | 23.29 | 23.17 | 22.15 | 21.97 | 21.92 | 22.16 |
| 27 | 23.81 | 23.36 | 22.83 | 21.94 | 22.31 | 22.97 | 23.25 | 23.01 | 22.07 | 21.99 | 21.88 | 22.04 |
| 28 | 23.99 | 23.39 | 22.77 | 21.91 | 22.29 | 22.95 | 23.38 | 23.05 | 22.00 | 21.93 | 21.88 | 22.18 |
| 29 | 23.99 | 23.48 | 22.77 | 21.94 | --- | 22.91 | 23.30 | 22.85 | 22.14 | 21.93 | 21.88 | 22.09 |
| 30 | 24.05 | 23.34 | 22.74 | 22.00 | --- | 22.97 | 23.32 | 22.80 | 22.08 | 21.87 | 21.88 | 22.14 |
| 31 | 24.13 | --- | 22.73 | 21.93 | --- | 23.00 | --- | 22.63 | --- | 21.90 | 21.94 | --- |
| MEAN | 23.92 | 23.86 | 23.01 | 22.15 | 22.05 | 22.61 | 23.18 | 23.09 | 22.34 | 22.06 | 21.87 | 22.09 |

WTR YR 1993 MEAN 22.69 HIGHEST 21.67 AUG. 24, 1993 LOWEST 24.20 NOV. 13, 1992



GROUND-WATER LEVELS

ST. CROIX, U.S. VIRGIN ISLANDS

174243064475100. Local number, 3.

LOCATION.--Lat 17°42'43", long 64°47'51", Hydrologic Unit 21020002, 0.75 mi northwest of the Alexander Hamilton Airport entrance on Hwy 64, 6.45 mi southwest of Christiansted Plaza, and 0.57 mi southwest of the Experimental Station. Owner: U.S. Virgin Islands Government, Name: Golden Grove - 6 (PW6).

AQUIFER.--Alluvium and marl.

WELL CHARACTERISTICS.--Drilled unused water-table well, diameter 8 in (0.20 m), cased 8 in (0.20 m).

INSTRUMENTATION.--Digital water level recorder--60-minute punch.

DATUM.--Elevation of land-surface datum is about 40 ft (12.2 m) above mean sea level, from topographic map.

Measuring point: Upper edge of hole at 8 in (0.20 m) casing, 4.20 ft (1.28 m) above land-surface datum.

REMARKS.--Recording observation well.

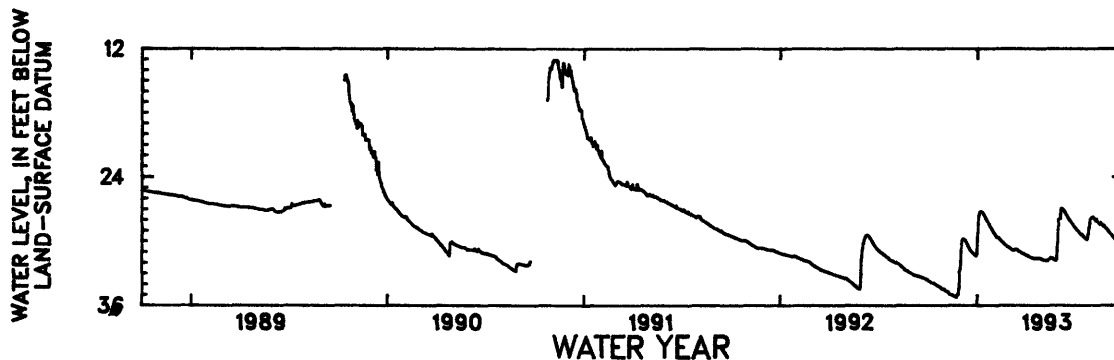
PERIOD OF RECORD.--March 1982 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level recorded, 12.99 ft (3.96 m) below land-surface datum, Nov. 10, 1990; lowest water level recorded, 35.23 ft (10.7 m) below land-surface datum, Nov. 23-24, 1992.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993
INSTANTANEOUS OBSERVATION AT 1200

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| 1 | 33.61 | 34.48 | 32.62 | 30.33 | 29.26 | 30.59 | 31.28 | 31.70 | 27.89 | 28.72 | 27.81 | 29.06 |
| 2 | 33.67 | 34.51 | 31.45 | 29.24 | 29.32 | 30.62 | 31.31 | 31.72 | 27.89 | 28.77 | 27.78 | 29.12 |
| 3 | 33.71 | 34.60 | 29.97 | 28.35 | 29.43 | 30.66 | 31.33 | 31.73 | 27.89 | 28.82 | 27.77 | 29.20 |
| 4 | 33.75 | 34.64 | 29.86 | 27.79 | 29.49 | 30.70 | 31.35 | 31.74 | 27.89 | 28.88 | 27.71 | 29.26 |
| 5 | 33.77 | 34.66 | 29.79 | 27.46 | 29.54 | 30.75 | 31.36 | 31.75 | 26.93 | 28.95 | 27.77 | 29.32 |
| 6 | 33.80 | 34.69 | 29.77 | 27.29 | 29.62 | 30.78 | 31.40 | 31.75 | 26.94 | 29.00 | 27.82 | 29.37 |
| 7 | 33.84 | 34.71 | 29.80 | 27.24 | 29.66 | 30.82 | 31.42 | 31.76 | 26.96 | 29.05 | 27.89 | 29.45 |
| 8 | 33.88 | 34.78 | 29.84 | 27.23 | 29.67 | 30.84 | 31.46 | 31.77 | 26.99 | 29.09 | 27.98 | 29.51 |
| 9 | 33.89 | 34.81 | 29.90 | 27.24 | 29.67 | 30.85 | 31.49 | 31.78 | 27.04 | 29.16 | 28.05 | 29.55 |
| 10 | 33.90 | 34.87 | 29.97 | 27.27 | 29.74 | 30.85 | 31.52 | 31.78 | 27.11 | 29.24 | 28.13 | 29.62 |
| 11 | 33.91 | 34.95 | 30.05 | 27.31 | 29.80 | 30.83 | 31.54 | 31.78 | 27.18 | 29.30 | 27.94 | 29.67 |
| 12 | 33.92 | 34.97 | 30.16 | 27.38 | 29.84 | 30.81 | 31.56 | 31.76 | 27.25 | 29.35 | 28.13 | 29.73 |
| 13 | 33.95 | 34.99 | 30.25 | 27.47 | 29.91 | 30.78 | 31.56 | 31.72 | 27.33 | 29.41 | 28.20 | 29.79 |
| 14 | 33.97 | 35.01 | 30.34 | 27.53 | 29.97 | 30.76 | 31.58 | 31.69 | 27.42 | 29.35 | 28.26 | 29.82 |
| 15 | 34.00 | 35.02 | 30.52 | 27.61 | 30.02 | 30.75 | 31.59 | 31.63 | 27.51 | 29.42 | 28.32 | 29.84 |
| 16 | 34.04 | 35.03 | 30.59 | 27.72 | 30.06 | 30.80 | 31.61 | 31.59 | 27.58 | 29.50 | 28.37 | 29.83 |
| 17 | 34.08 | 35.06 | 30.67 | 27.84 | 30.13 | 30.84 | 31.61 | 31.56 | 27.66 | 29.56 | 28.41 | 29.84 |
| 18 | 34.11 | 35.09 | 30.78 | 27.95 | 30.15 | 30.89 | 31.60 | 31.54 | 27.77 | 29.60 | 28.46 | 29.86 |
| 19 | 34.14 | 35.11 | 30.85 | 28.04 | 30.22 | 30.92 | 31.59 | 31.54 | 27.83 | 29.66 | 28.28 | 29.88 |
| 20 | 34.18 | 35.14 | 30.88 | 28.13 | 30.26 | 30.96 | 31.59 | 31.57 | 27.90 | 29.72 | 28.46 | 29.91 |
| 21 | 34.21 | 35.16 | 30.94 | 28.24 | 30.33 | 30.99 | 31.60 | 31.62 | 27.97 | 29.75 | 28.53 | 29.95 |
| 22 | 34.23 | 35.19 | 31.00 | 28.35 | 30.35 | 31.02 | 31.59 | 31.67 | 28.06 | 29.81 | 28.57 | 29.99 |
| 23 | 34.25 | 35.22 | 31.07 | 28.47 | 30.38 | 31.05 | 31.59 | 31.70 | 28.12 | 29.84 | 28.63 | 30.03 |
| 24 | 34.27 | 35.23 | 31.11 | 28.57 | 30.44 | 31.08 | 31.61 | 31.72 | 28.20 | 29.86 | 28.54 | 30.09 |
| 25 | 34.34 | 34.98 | 31.17 | 28.68 | 30.50 | 31.11 | 31.60 | 31.74 | 28.28 | 29.70 | 28.68 | 30.13 |
| 26 | 34.37 | 34.96 | 31.21 | 28.74 | 30.53 | 31.13 | 31.59 | 31.78 | 28.36 | 29.25 | 28.74 | 30.18 |
| 27 | 34.44 | 34.95 | 31.25 | 28.84 | 30.56 | 31.16 | 31.59 | 31.80 | 28.42 | 28.78 | 28.76 | 30.22 |
| 28 | 34.46 | 34.34 | 31.30 | 28.94 | 30.57 | 31.18 | 31.61 | 31.67 | 28.51 | 28.43 | 28.82 | 30.28 |
| 29 | 34.48 | 32.81 | 31.34 | 29.01 | --- | 31.21 | 31.64 | 30.92 | 28.59 | 28.22 | 28.89 | 30.32 |
| 30 | 34.44 | 32.75 | 31.37 | 29.10 | --- | 31.22 | 31.68 | 29.74 | 28.66 | 28.01 | 28.94 | 30.37 |
| 31 | 34.46 | --- | 31.19 | 29.19 | --- | 31.25 | --- | 28.45 | --- | 27.88 | 29.01 | --- |
| MEAN | 34.07 | 34.76 | 30.68 | 28.15 | 29.98 | 30.91 | 31.53 | 31.51 | 27.74 | 29.16 | 28.31 | 29.77 |

WTR YR 1993 MEAN 30.55 HIGHEST 26.88 JUNE 5, 1993 LOWEST 35.23 NOV. 23-24, 1992



GROUND-WATER LEVELS

ST. CROIX, U.S. VIRGIN ISLANDS

174245064475800. Local number, 4.

LOCATION.--Lat 17°42'45", long 64°47'58", Hydrologic Unit 21020002, 5.40 mi east of Fort Frederick at Frederickstead, 0.80 mi northeast of Envy, and 1.52 mi southeast of Holy Cross Church. Owner: U.S. Virgin Islands Government, Name: Golden Grove - 1 (PW1).

AQUIFER.--Alluvium and marl.

WELL CHARACTERISTICS.--Observation drilled production water-table well, diameter 6 in (0.15 m), cased 6 in (0.15 m), 0-104 ft (0-31.70 m), perforated 64-104 ft (19.51-31.70 m). Depth 104 ft (31.70 m).

INSTRUMENTATION.--Monthly measurement with chalked steel tape by USGS personnel.

DATUM.--Elevation of land-surface datum is about 40 ft (12.2 m) above mean sea level, from topographic map. Measuring point: Lower edge of 1 in. (0.02 m) pipe at pump base, 3.40 ft (1.04 m) above land-surface datum.

REMARKS.--Observation well. Water levels affected by pumping.

PERIOD OF RECORD.--January 1983 to current year.

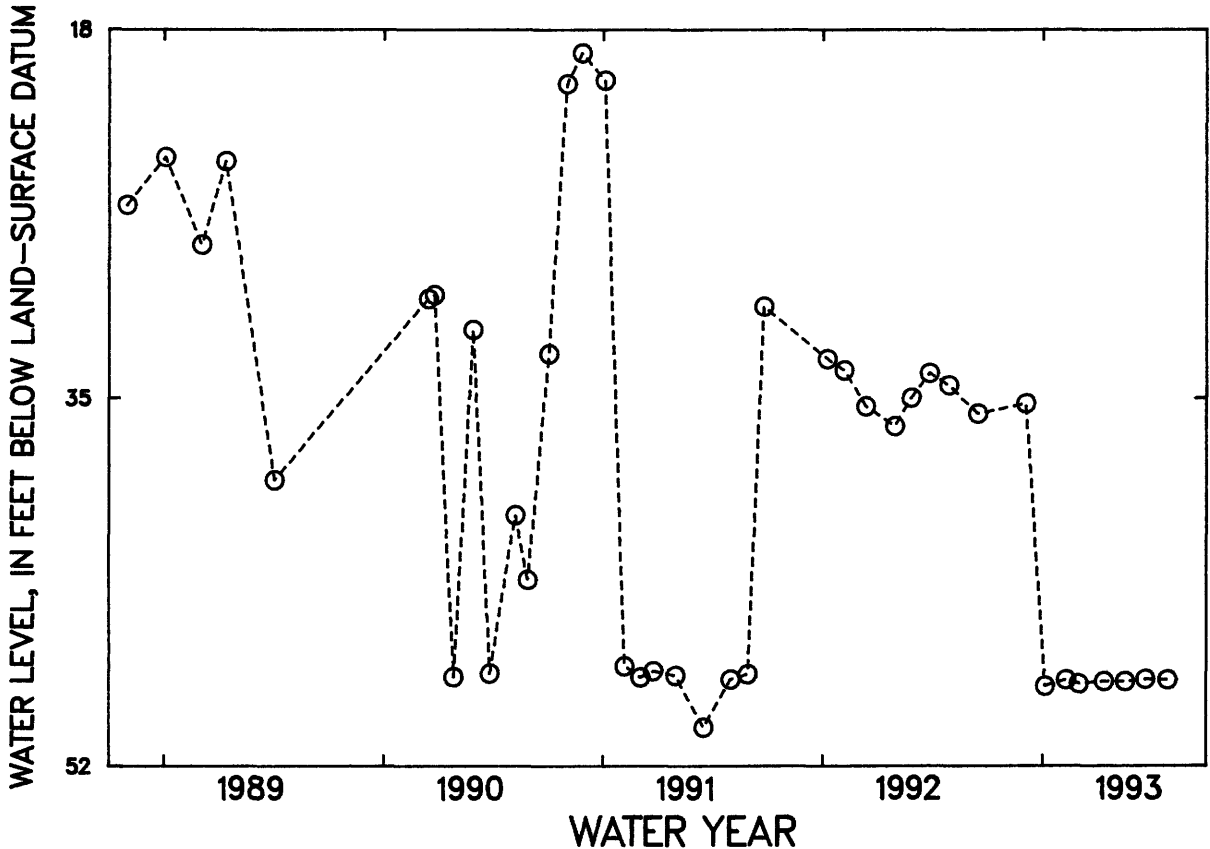
EXTREMES FOR PERIOD OF RECORD: Highest water level measured, 19.08 ft (5.81 m) below land-surface datum, Nov. 26, 1990; lowest water level measured, a58.30 ft (17.77 m) below land-surface datum, September 27, 1983.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993
INSTANTANEOUS OBSERVATIONS

| Date | Water level | Date | Water level | Date | Water level | Date | Water level |
|--------|-------------|--------|-------------|---------|-------------|---------|-------------|
| Dec. 4 | 35.26 | Feb. 9 | a48.03 | Apr. 13 | a48.10 | June 21 | a48.00 |
| Jan. 5 | a48.32 | Mar. 2 | a48.20 | May 18 | a48.10 | July 28 | a48.03 |

WATER YEAR 1993 HIGHEST 35.26 DEC. 4, 1992 LOWEST a48.32 JAN. 5, 1993

a Pumping.



GROUND-WATER LEVELS
ST. CROIX, U.S. VIRGIN ISLANDS

174303064484400. Local number, 6.

LOCATION.--Lat 17°43'03", long 64°48'44", Hydrologic Unit 21020002, 4.95 mi northeast of Fort Frederick at Frederickstead, 1.10 mi southwest of Holy Cross Church, and 0.40 mi northwest of Adventure ruins. Owner: U.S. Virgin Islands Government, Name: Adventure 28.

AQUIFER.--Alluvium of Pleistocene age and marl of Oligocene age.

WELL CHARACTERISTICS.--Drilled unused water-table well, diameter 4 in (0.10 m), cased 4 in (0.10 m). Depth 97 ft (29.6 m).

INSTRUMENTATION.--Monthly measurement with chalked steel tape by USGS personnel.

DATUM.--Elevation of land-surface datum is about 80 ft (24.39 m) above mean sea level, from topographic map. Measuring point: Upper edge of hole at 4 in (0.10 m) casing, 2.00 ft (0.61 m) above land-surface datum. Prior June 20, 1983, top of 4 in (0.10 m) casing, 0.90 ft (0.27 m) above land-surface datum.

REMARKS.--Recording observation well.

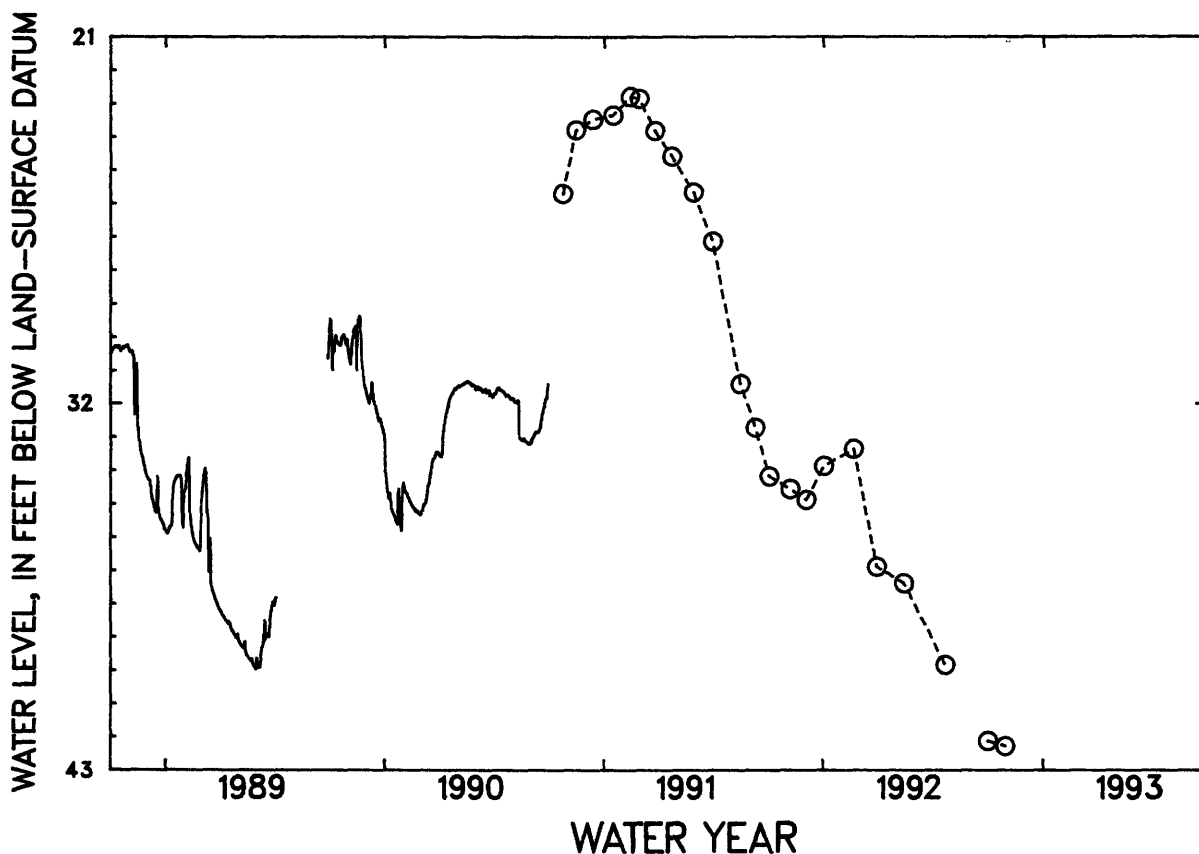
PERIOD OF RECORD.--August 1973 to March 1974, discontinued. March 1982 to October 30, 1992, discontinued.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 22.80 ft (6.95 m) below land-surface datum, Feb. 13, 1991; lowest water level measured, 42.3 ft (12.9 m) below land-surface datum, Oct. 30, 1992.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993
INSTANTANEOUS OBSERVATIONS

| Date | Water level | Date | Water level |
|--------|-------------|---------|-------------|
| Oct. 1 | 42.15 | Oct. 30 | 42.28 |

WATER YEAR 1993 HIGHEST 42.15 OCT. 1, 1992 LOWEST 42.28 OCT. 30, 1992



GROUND-WATER LEVELS

ST. CROIX, U.S. VIRGIN ISLANDS

174525064460600. Local number, 7.

LOCATION.--Lat 17°45'25", long 64°46'06", Hydrologic Unit 21020002, 4.35 mi northwest of Christiansted Plaza, 4.25 mi northeast of the Alexander Hamilton Airport entrance on Hwy 64, and 0.45 mi southeast of Windsor Ruins. Owner: U.S. Virgin Islands Government, Name: Concordia 14.

AQUIFER.--Sand and gravel.

WELL CHARACTERISTICS.--Observation drilled production water-table well, diameter 6 in (0.15 m), cased 6 in (0.15 m). Depth 85 ft (25.91 m).

INSTRUMENTATION.--Monthly measurement with chalked steel tape by USGS personnel.

DATUM.--Elevation of land-surface datum is about 40 ft (12.2 m) above mean sea level, from topographic map. Measuring point: Top of 0.50 in (0.01 m) pipe on top of pump concrete base, 2.30 ft (0.70 m) above land-surface datum.

REMARKS.--Observation well. Water levels affected by pumpage.

PERIOD OF RECORD.--March 1982 to current year.

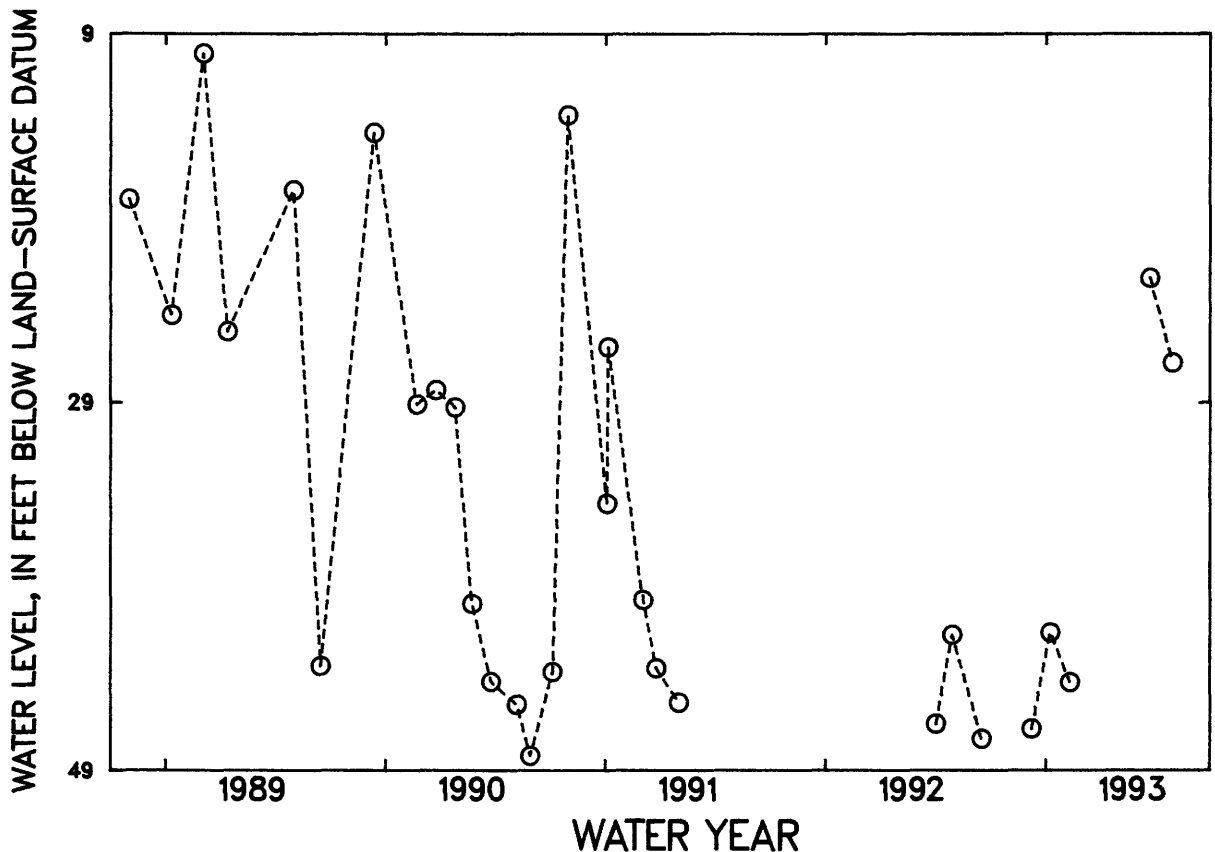
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 10.07 ft (3.07 m) below land-surface datum, Mar. 4, 1989; lowest water level measured, a48.20 ft (a14.7 m) below land-surface datum, Aug. 24, 1990.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993
INSTANTANEOUS OBSERVATIONS

| Date | Water level | Date | Water level | Date | Water level | Date | Water level |
|--------|-------------|---------|-------------|---------|-------------|---------|-------------|
| Dec. 8 | a46.74 | Feb. 10 | a44.20 | June 22 | 22.24 | July 30 | 26.84 |
| Jan. 8 | a41.49 | | | | | | |

WATER YEAR 1993 HIGHEST 22.24 JUNE 22, 1993 LOWEST a46.74 DEC. 8, 1992

a Pumping.



GROUND-WATER LEVELS

ST. CROIX, U.S. VIRGIN ISLANDS

174527064460100. Local number, 8.

LOCATION.--Lat 17°45'27", long 64°46'01", Hydrologic Unit 21020002, 4.35 mi northeast of the Alexander Hamilton Airport entrance on Hwy 64, 4.15 mi northwest of Christiansted Plaza, and 0.50 mi southeast of Windsor Ruins. Owner: U.S. Virgin Islands Government, Name: Concordia 1 (Main pump house).

AQUIFER.--Limestone of Tertiary Age.

WELL CHARACTERISTICS.--Observation drilled production water-table well, diameter 6 in (0.15 m), cased 6 in (0.15 m). Depth 82 ft (25.0 m).

INSTRUMENTATION.--Monthly measurement with chalked steel tape by USGS personnel.

DATUM.--Elevation of land-surface datum is about 40 ft (12.2 m) above mean sea level, from topographic map. Measuring point: Top of 6 in (0.15 m) casing, 2.20 ft (0.67 m) above land-surface datum.

REMARKS.--Observation well. Water levels affected by pumpage.

PERIOD OF RECORD.--March 1982 to current year.

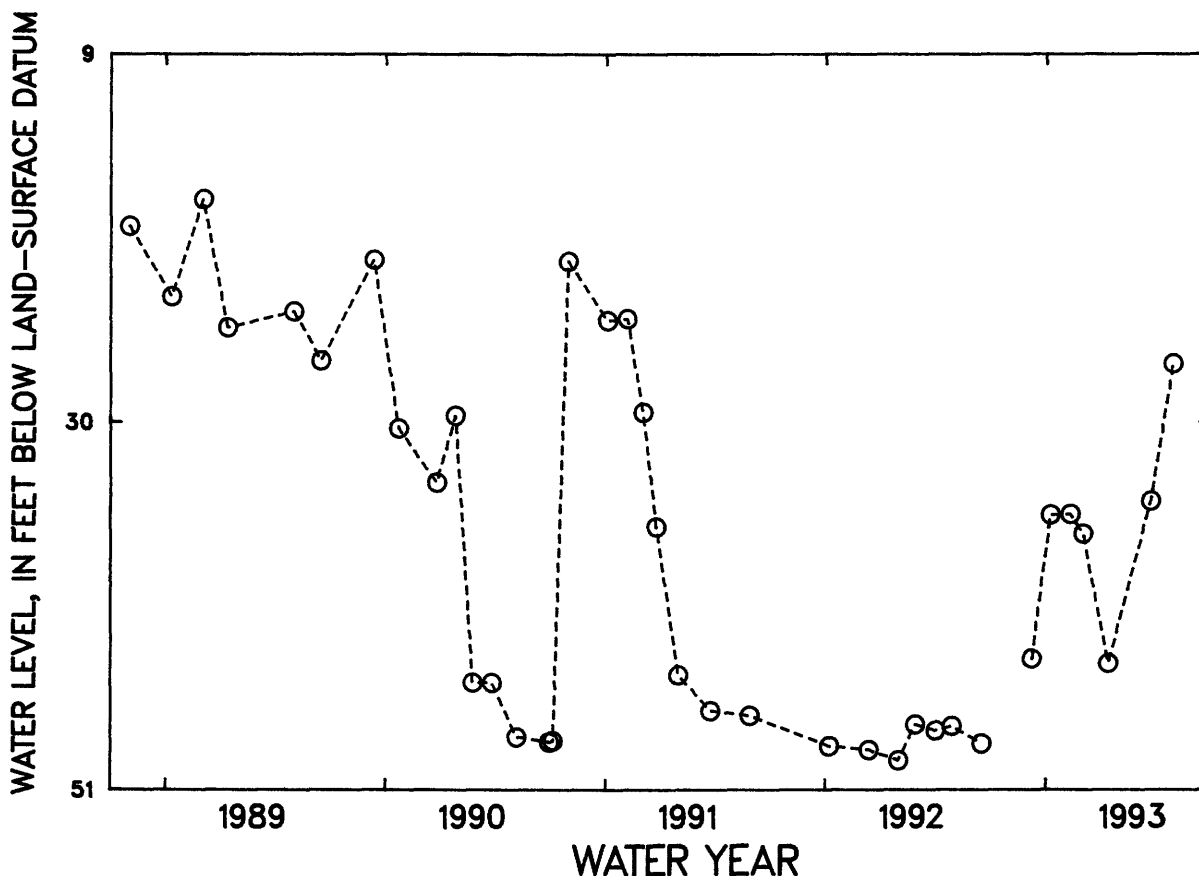
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 14.03 ft (4.28 m) below land-surface datum, Jan. 19, 1988; lowest water level measured, a49.34 ft (a15.4 m) below land-surface datum, May 4, 1992.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993
INSTANTANEOUS OBSERVATIONS

| Date | Water level | Date | Water level | Date | Water level | Date | Water level |
|--------|-------------|---------|-------------|---------|-------------|---------|-------------|
| Dec. 8 | a43.52 | Feb. 10 | 35.26 | Apr. 14 | a43.80 | July 30 | 26.67 |
| Jan. 8 | 35.30 | Mar. 3 | 36.38 | June 23 | a34.52 | | |

WATER YEAR 1993 HIGHEST 26.67 JULY 30, 1993 LOWEST a43.80 APR. 14, 1993

a Pumping.



GROUND-WATER LEVELS

ST. CROIX, U.S. VIRGIN ISLANDS

174532064460300. Local number, 9.

LOCATION.--Lat 17°45'32", long 64°46'03", Hydrologic Unit 21020002, 4.20 mi northwest of Christiansted Plaza, 4.32 mi northeast of Alexander Hamilton Airport entrance on Hwy 64, and 0.40 mi southeast of Windsor Ruins. Owner: U.S. Virgin Islands Government, Name: Concordia 7.

AQUIFER.--Limestone of Tertiary Age.

WELL CHARACTERISTICS.--Observation drilled production water-table well, diameter 6 in (0.15 m), cased 0-81 ft (0-24.7 m). Depth 81 ft (24.7 m).

INSTRUMENTATION.--Monthly measurement with chalked steel tape by USGS personnel.

DATUM.--Elevation of land-surface datum is 35 ft (10.7 m) above mean sea level, from topographic map. Measuring point: Hole in pump base, 2.20 ft (0.67 m) above land-surface datum. Previous to Mar. 25, 1982, hole in pump base 2.50 ft (0.76 m) above land-surface datum.

REMARKS.--Observation well. Water levels affected by pumping.

PERIOD OF RECORD.--June 1962 to October 1968, discontinued. March 1982 to current year.

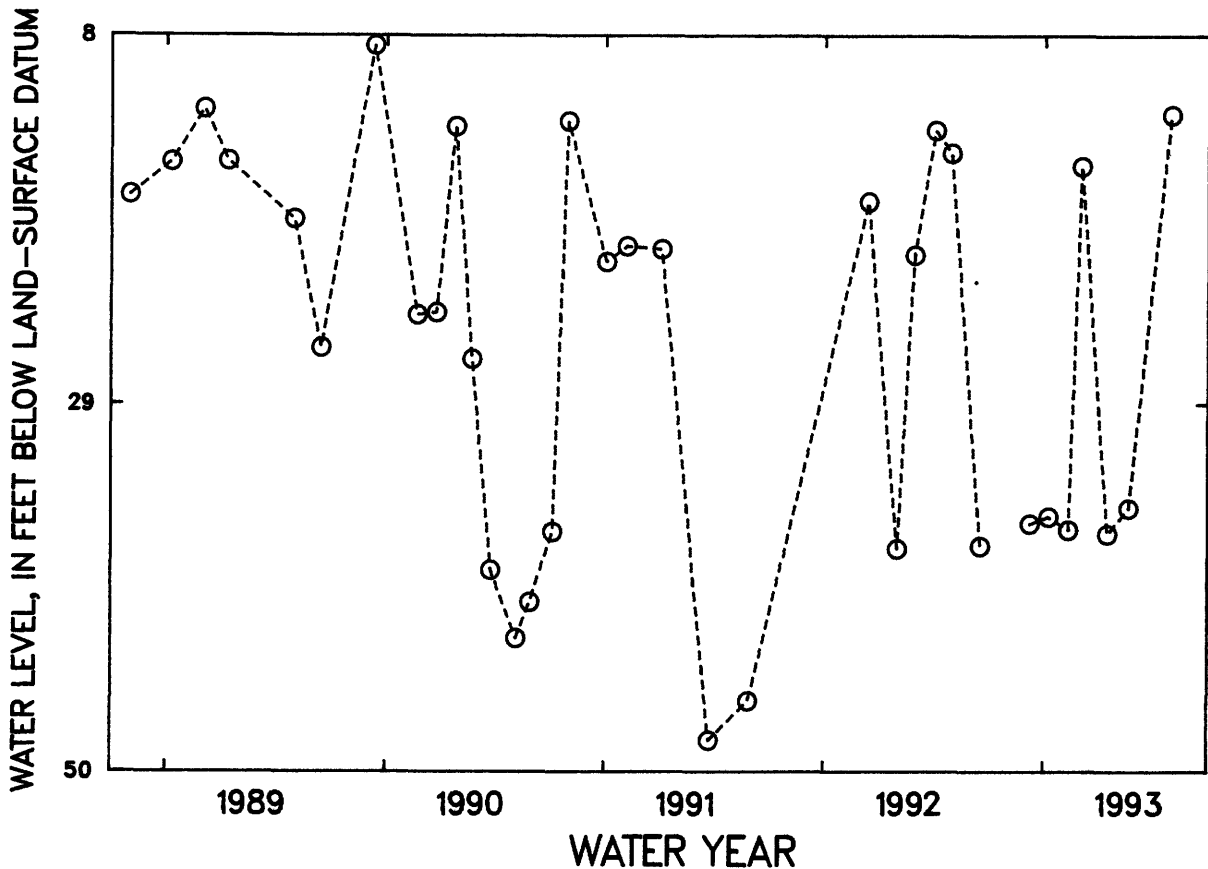
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 1.75 ft (0.53 m) below land-surface datum, May 11, 1966; lowest water level measured, 57.40 ft (17.5 m) below land-surface datum, Mar. 5, 1964.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993
INSTANTANEOUS OBSERVATIONS

| Date | Water level | Date | Water level | Date | Water level | Date | Water level |
|--------|-------------|---------|-------------|---------|-------------|---------|-------------|
| Dec. 8 | a35.83 | Feb. 10 | a36.18 | Apr. 16 | a36.42 | July 30 | 12.51 |
| Jan. 8 | a35.43 | Mar. 3 | 15.45 | May 21 | a34.94 | | |

WATER YEAR 1993 HIGHEST 12.51 JULY 30, 1993 LOWEST a36.42 APR. 16, 1993

a Pumping.



GROUND-WATER LEVELS

ST. CROIX, U.S. VIRGIN ISLANDS

174329064454700. Local number, 10.

LOCATION.--Lat 17°43'29", long 64°45'47", Hydrologic Unit 21020002, 4.05 mi southwest of Christiansted plaza, 2.40 mi northeast of the Experimental Station, and 2.75 mi northeast of the Alexander Hamilton Airport entrance on Hwy 64. Owner: U.S. Virgin Islands Government, Name: Barren Spot 5 (PWD-5).

AQUIFER.--Alluvium and marl.

WELL CHARACTERISTICS.--Drilled production water-table well, diameter 6 in (0.15 m), cased 0-130 ft (0-39.63 m), perforated 71-130 ft (21.64-39.63 m). Depth 130 ft (39.63 m).

INSTRUMENTATION.--Monthly measurement with chalked steel tape by USGS personnel.

DATUM.--Elevation of land-surface datum is about 75 ft (22.86 m) above mean sea level, from topographic map. Measuring point: Hole on top of pump base, 2.00 ft (0.61 m) above land-surface datum.

REMARKS.--Observation well. Water levels affected by pumping.

PERIOD OF RECORD.--March 1982 to current year.

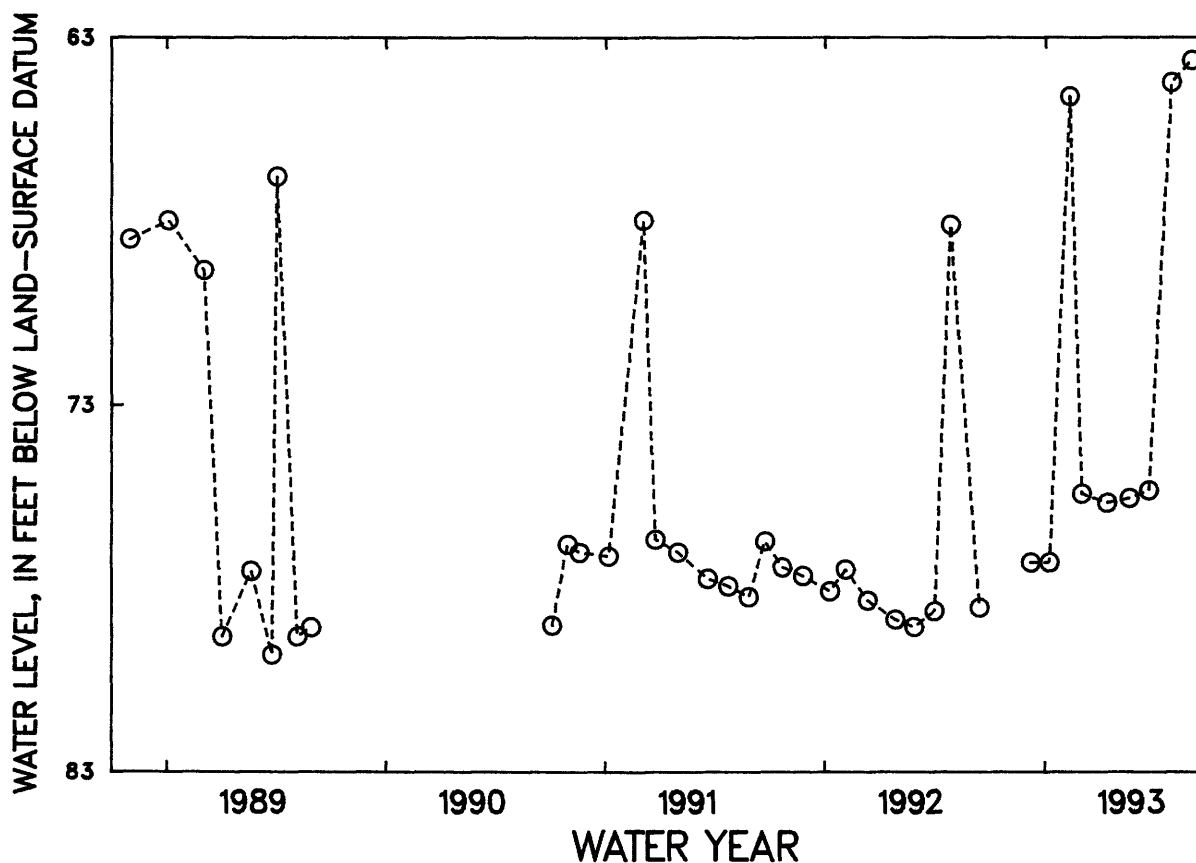
EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 61.86 ft (18.86 m) below land-surface datum, Mar. 26, 1982; lowest water level measured, a79.81 ft (a24.33 m) below land-surface datum, June 25, 1990.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993
INSTANTANEOUS OBSERVATIONS

| Date | Water level | Date | Water level | Date | Water level | Date | Water level |
|---------|-------------|---------|-------------|---------|-------------|---------|-------------|
| Dec. 8 | a77.30 | Mar. 3 | a75.42 | May 21 | a75.54 | July 29 | 64.22 |
| Jan. 8 | a77.30 | Apr. 14 | a75.67 | June 22 | a75.33 | Aug. 31 | 63.62 |
| Feb. 10 | 64.60 | | | | | | |

WATER YEAR 1993 HIGHEST 63.62 AUG. 31, 1993 LOWEST a77.30 DEC. 8, 1992, JAN. 8, 1993

a Pumping.



GROUND-WATER LEVELS

ST. CROIX, U.S. VIRGIN ISLANDS

174303064481100. Local number, 11.

LOCATION.--Lat 17°43'03", long 64°18'11", Hydrologic Unit 21020002, 5.20 mi east of Fort Frederick at Frederickstead, 1.20 mi southeast of Holy Cross Church, and 0.45 mi northeast of Adventure Ruins. Owner: U.S. Virgin Islands Water and Power Authority, Name: WAPA-02 at Adventure well field.

AQUIFER.--Alluvium and Kingshill Limestone.

WELL CHARACTERISTICS.--Drilled observation well, diameter 4 in (0.10 m), cased 0-60 ft (0-18.3 m), screened 20-40 ft (6.09-12.2 m). Open hole 60-100 ft (18.3-30.5 m). Depth 100 ft (30.5 m).

INSTRUMENTATION.--Digital water level recorder--60-minute punch.

DATUM.--Elevation of land-surface datum is about 50 ft (15.2 m) above mean sea level, from topographic map.

Measuring point: Top of shelter floor, 2.00 ft (0.61 m) above land-surface datum.

REMARKS.--Recording observation well.

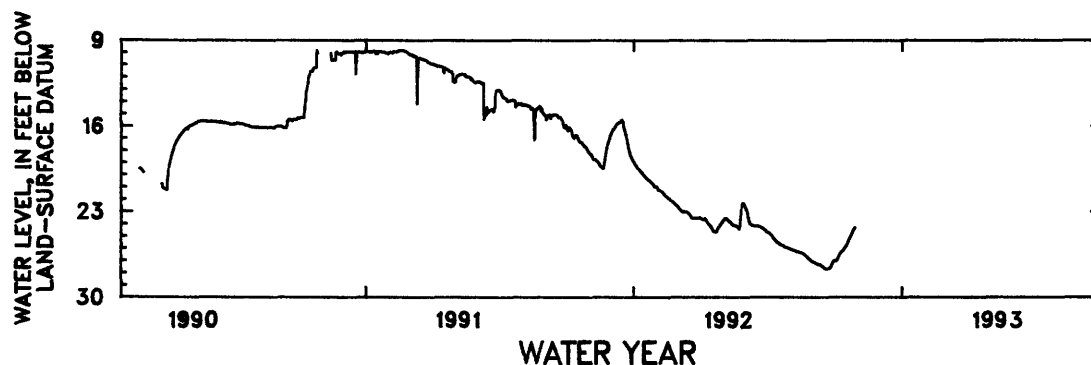
PERIOD OF RECORD.--February 27, 1990 to October 30, 1992, discontinued.

EXTREMES FOR PERIOD OF RECORD.--Highest water level recorded, 9.75 ft (2.97 m) below land-surface datum, Oct. 26-27, 1990; lowest water level recorded, 27.68 ft (8.44 m) below land-surface datum, Sept. 19-23, 1992

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993
INSTANTANEOUS OBSERVATION AT 1200

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|------|-------|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| 1 | 27.01 | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 2 | 27.01 | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 3 | 27.01 | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 4 | 26.94 | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 5 | 26.82 | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 6 | 26.70 | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 7 | 26.58 | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 8 | 26.47 | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 9 | 26.38 | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 10 | 26.31 | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 11 | 26.27 | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 12 | 26.20 | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 13 | 26.12 | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 14 | 26.02 | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 15 | 25.94 | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 16 | 25.86 | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 17 | 25.76 | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 18 | 25.63 | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 19 | 25.49 | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 20 | 25.35 | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 21 | 25.22 | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 22 | 25.09 | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 23 | 24.97 | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 24 | 24.83 | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 25 | 24.71 | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 26 | 24.56 | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 27 | 24.44 | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 28 | 24.34 | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 29 | 24.29 | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 30 | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 31 | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| MEAN | 25.80 | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |

WTR YR 1993 MEAN 25.80 HIGHEST 24.29 OCT. 10, 1992 LOWEST 27.02 OCT. 29, 30, 1992



GROUND-WATER LEVELS

ST. CROIX, U.S. VIRGIN ISLANDS

174308064482800. Local number, 12.

LOCATION.--Lat 17°43'08", long 64°48'28", Hydrologic Unit 21020002, 4.95 mi east of Fort Frederick at Frederickstead, 1.10 mi south of Holy Cross Church, and 0.40 mi northeast of Adventure Ruins. Owner: U.S. Virgin Islands Water and Power Authority, Name: WAPA-03 at Adventure well field.

AQUIFER.--Kingshill Limestone.

WELL CHARACTERISTICS.--Drilled observation well, diameter 4 in (0.10 m), cased 0-110 ft (0-33.5 m), screened 50-90 ft (15.2-27.4 m). Depth 110 ft (33.5 m).

INSTRUMENTATION.--Digital water level recorder--60-minute punch.

DATUM.--Elevation of land-surface datum is about 60 ft (18.3 m) above mean sea level, from topographic map.

Measuring point: Top of shelter floor, 3.00 ft (0.91 m) above land-surface datum.

REMARKS.--Recording observation well.

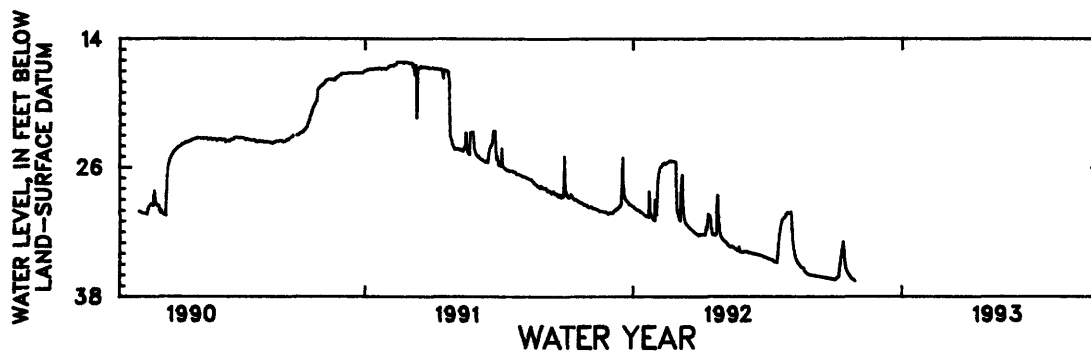
PERIOD OF RECORD.--February 28, 1990 to October 30, 1992, discontinued.

EXTREMES FOR PERIOD OF RECORD.--Highest water level recorded, 16.13 ft (4.92 m) below land-surface datum, Feb. 25, 1991; lowest water level recorded, 36.54 ft (11.13 m) below land-surface datum, Oct. 30, 1992.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993
INSTANTANEOUS OBSERVATION AT 1200

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|------|-------|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| 1 | 36.42 | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 2 | 36.38 | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 3 | 36.34 | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 4 | 36.29 | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 5 | 36.23 | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 6 | 36.18 | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 7 | 36.12 | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 8 | 35.32 | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 9 | 34.82 | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 10 | 34.30 | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 11 | 33.68 | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 12 | 33.21 | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 13 | 32.86 | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 14 | 33.68 | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 15 | 34.51 | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 16 | 35.06 | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 17 | 35.42 | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 18 | 35.63 | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 19 | 35.78 | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 20 | 35.89 | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 21 | 36.00 | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 22 | 36.11 | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 23 | 36.19 | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 24 | 36.29 | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 25 | 36.35 | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 26 | 36.39 | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 27 | 36.43 | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 28 | 36.48 | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 29 | 36.53 | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 30 | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 31 | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| MEAN | 35.55 | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |

WTR YR 1993 MEAN 35.55 HIGHEST 32.86 OCT. 13, 1992 LOWEST 36.54 OCT. 30, 1992



GROUND-WATER LEVELS

ST. CROIX, U.S. VIRGIN ISLANDS

174316064480800. Local number, 13.

LOCATION.--Lat 17°43'16", long 64°48'08", Hydrologic Unit 21020002, 5.25 mi east of Fort Frederick at Frederickstead, 0.95 mi southeast of Holy Cross Church, and 0.65 mi northeast of Adventure Ruins. Owner: U.S. Virgin Islands Water and Power Authority, Name: WAPA-17 at Adventure well field.

AQUIFER.--Kingshill Limestone.

WELL CHARACTERISTICS.--Drilled observation well, diameter 4 in (0.10 m), cased 0-95 ft (0-29.0 m), screened 10-40 ft (3.05-12.2 m). Depth 95 ft (29.0 m).

INSTRUMENTATION.--Digital water level recorder--60-minute punch.

DATUM.--Elevation of land-surface datum is about 75 ft (22.9 m) above mean sea level, from topographic map.

Measuring point: Top of shelter floor, 2.33 ft (0.71 m) above land-surface datum.

REMARKS.--Recording observation well.

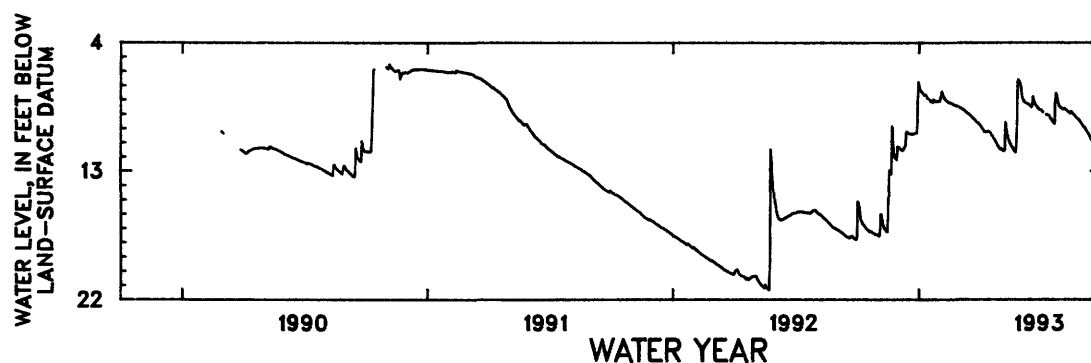
PERIOD OF RECORD.--February 28, 1990 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level recorded, 4.68 ft (1.43 m) below land-surface datum, Oct. 14 1990; lowest water level recorded, 21.36 ft (6.51 m) below land-surface datum, May 23, 1992

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993
INSTANTANEOUS OBSERVATION AT 1200

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|------|-------|-------|-------|------|------|------|-------|-------|------|------|------|-------|
| 1 | 17.67 | 17.49 | 11.35 | 7.01 | 8.09 | 8.49 | 9.71 | 11.39 | 6.91 | 8.67 | 8.56 | 9.72 |
| 2 | 15.09 | 17.52 | 11.32 | 7.22 | 7.87 | 8.51 | 9.75 | 11.45 | 7.14 | 8.71 | 8.60 | 9.78 |
| 3 | 15.23 | 17.55 | 11.38 | 7.31 | 7.76 | 8.55 | 9.84 | 11.48 | 7.59 | 8.76 | 8.64 | 9.87 |
| 4 | 15.48 | 17.28 | 11.44 | 7.36 | 7.39 | 8.59 | 9.91 | 11.42 | 7.81 | 8.81 | 8.63 | 9.91 |
| 5 | 15.86 | 15.98 | 11.48 | 7.42 | 7.60 | 8.59 | 9.97 | 11.48 | 7.97 | 8.86 | 8.62 | 9.97 |
| 6 | 16.23 | 16.01 | 11.51 | 7.47 | 7.71 | 8.62 | 10.05 | 11.54 | 8.06 | --- | 8.62 | 10.03 |
| 7 | 16.45 | 16.36 | 11.53 | 7.53 | 7.80 | 8.67 | 10.13 | 11.58 | 8.14 | --- | 8.64 | 10.13 |
| 8 | 16.55 | 16.73 | 11.52 | 7.63 | 7.90 | 8.68 | 10.17 | 11.56 | 8.16 | --- | 8.70 | 10.19 |
| 9 | 16.67 | 16.87 | 11.45 | 7.65 | 7.95 | 8.71 | 10.25 | 11.49 | 8.20 | --- | 8.73 | 10.28 |
| 10 | 16.74 | 16.95 | 11.35 | 7.68 | 8.01 | 8.74 | 10.25 | 9.51 | 8.23 | 9.03 | 8.78 | 10.34 |
| 11 | 16.78 | 17.04 | 11.25 | 7.64 | 8.06 | 8.80 | 10.24 | 9.87 | 8.26 | 9.03 | 8.82 | 10.45 |
| 12 | 16.84 | 17.10 | 11.13 | 7.71 | 8.10 | 8.84 | 10.24 | 10.25 | 8.29 | 9.08 | 8.86 | 10.53 |
| 13 | 16.90 | 17.15 | 10.22 | 7.86 | 8.13 | 8.88 | 10.21 | 10.50 | 8.30 | 9.08 | 8.90 | 10.63 |
| 14 | 16.95 | 17.21 | 10.21 | 7.87 | 8.17 | 8.91 | 10.21 | 10.69 | 8.35 | 9.08 | 8.95 | 10.72 |
| 15 | 17.02 | 17.23 | 10.28 | 7.93 | 8.21 | 8.94 | 10.23 | 10.83 | 8.38 | 9.26 | 8.93 | 10.83 |
| 16 | 17.07 | 14.81 | 10.34 | 7.98 | 8.20 | 8.98 | 10.24 | 10.96 | 8.41 | 9.27 | 8.82 | 10.87 |
| 17 | 17.11 | 14.70 | 10.35 | 8.02 | 8.21 | 9.02 | 10.28 | 11.07 | 8.47 | 9.34 | 8.89 | 10.95 |
| 18 | 17.15 | 12.93 | 10.37 | 8.08 | 8.24 | 9.06 | 10.37 | 11.16 | 8.51 | 9.43 | 8.95 | 11.02 |
| 19 | 17.21 | 12.92 | 10.39 | 8.12 | 8.25 | 9.10 | 10.47 | 11.26 | 8.35 | 9.52 | 9.00 | 11.10 |
| 20 | 17.24 | 13.02 | 10.38 | 8.07 | 8.27 | 9.16 | 10.51 | 11.34 | 7.76 | 9.57 | 9.05 | 11.19 |
| 21 | 17.21 | 13.20 | 10.39 | 8.06 | 8.32 | 9.22 | 10.57 | 11.42 | 8.04 | 9.64 | 9.10 | 11.25 |
| 22 | 17.24 | 9.79 | 10.39 | 8.16 | 8.35 | 9.26 | 10.65 | 11.49 | 8.16 | 9.68 | 9.15 | 11.31 |
| 23 | 17.26 | 10.74 | 10.39 | 7.95 | 8.35 | 9.29 | 10.73 | 11.56 | 8.27 | 8.15 | 9.21 | 11.37 |
| 24 | 17.30 | 11.42 | 10.36 | 8.04 | 8.37 | 9.33 | 10.81 | 11.62 | 8.35 | 7.50 | 9.25 | 11.28 |
| 25 | 17.33 | 11.77 | 10.36 | 8.08 | 8.40 | 9.39 | 10.91 | 11.69 | 8.41 | 7.58 | 9.29 | 11.36 |
| 26 | 17.35 | 11.98 | 10.34 | 8.11 | 8.43 | 9.43 | 11.00 | 11.29 | 8.48 | 7.89 | 9.37 | 11.42 |
| 27 | 17.39 | 12.09 | 10.32 | 8.11 | 8.45 | 9.51 | 11.08 | 9.72 | 8.54 | 8.15 | 9.37 | 11.48 |
| 28 | 17.42 | 12.13 | 10.30 | 8.08 | 8.47 | 9.56 | 11.18 | 6.71 | 8.59 | 8.32 | 9.44 | 11.52 |
| 29 | 17.42 | 12.17 | 10.29 | 8.09 | --- | 9.59 | 11.25 | 6.57 | 8.63 | 8.44 | 9.50 | 11.56 |
| 30 | 17.42 | 11.23 | 8.54 | 8.09 | --- | 9.60 | 11.34 | 6.65 | 8.68 | 8.51 | 9.57 | 11.60 |
| 31 | 17.45 | --- | 6.70 | 8.09 | --- | 9.67 | --- | 6.77 | --- | 8.55 | 9.65 | --- |
| MEAN | 16.87 | 14.65 | 10.57 | 7.82 | 8.11 | 9.02 | 10.42 | 10.53 | 8.18 | 8.81 | 8.99 | 10.76 |

WTR YR 1993 MEAN 10.42 HIGHEST 6.56 MAY 29, 1993 LOWEST 17.78 OCT. 1, 1992



GROUND-WATER LEVELS

ST. CROIX, U.S. VIRGIN ISLANDS

174247064475701. Local number, 14.

LOCATION.--Lat 17°42'47", long 64°47'57", Hydrologic Unit 21020002, 0.80 mi northwest of the Alexander Hamilton Airport entrance on Hwy 64, 0.53 mi south of the Experimental Station, and 6.65 mi southwest of Christiansted Plaza. Owner: U.S. Virgin Islands Water and Power Authority, Name: WAPA-21a at Golden Grove well field.

AQUIFER.--Alluvial, Kingshill Limestone.

WELL CHARACTERISTICS.--Drilled observation well, diameter 4 in (0.10 m), cased 0-70 ft (0-21.3 m), screened 15-70 ft (4.57-21.3 m). Depth 100 ft (30.5 m), well collapsed to 70 ft (21.3 m).

INSTRUMENTATION.--Digital water level recorder--60-minute punch.

DATUM.--Elevation of land-surface datum is about 52 ft (15.8 m) above mean sea level, from topographic map.

Measuring point: Top of shelter floor, 3.25 ft (0.99 m) above land-surface datum.

REMARKS.--Recording observation well. Water levels affected by nearby pumping well.

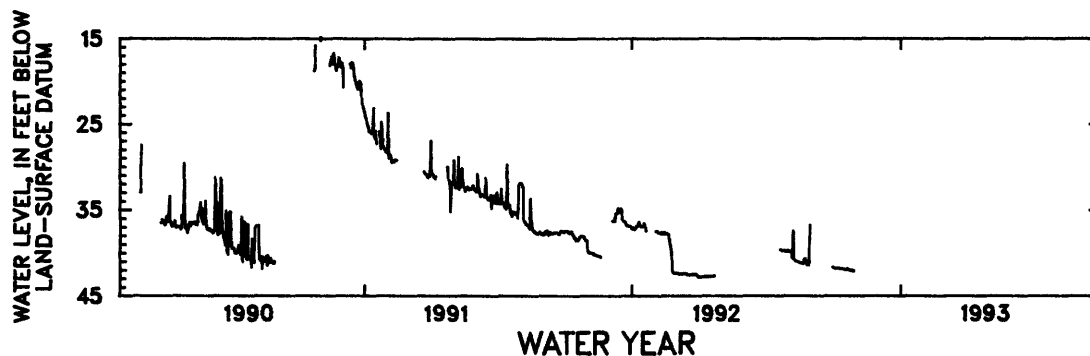
PERIOD OF RECORD.--February 28, 1990 to October 30, 1992, discontinued.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 14.19 ft (4.32 m) below land-surface datum, Nov. 3, 1990; lowest water level recorded, 43.26 ft (13.2 m) below land-surface datum, Apr. 22, 1992

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993
INSTANTANEOUS OBSERVATION AT 1200

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|------|-------|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| 1 | 41.73 | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 2 | 41.77 | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 3 | 41.81 | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 4 | 41.80 | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 5 | 41.81 | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 6 | 41.76 | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 7 | 41.77 | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 8 | 41.78 | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 9 | 41.81 | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 10 | 41.82 | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 11 | 41.83 | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 12 | 41.84 | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 13 | 41.85 | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 14 | 41.88 | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 15 | 41.90 | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 16 | 41.91 | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 17 | 41.92 | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 18 | 41.94 | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 19 | 41.95 | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 20 | 41.82 | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 21 | 41.89 | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 22 | 41.96 | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 23 | 42.00 | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 24 | 41.99 | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 25 | 42.01 | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 26 | 41.99 | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 27 | 42.06 | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 28 | 42.06 | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 29 | 42.06 | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 30 | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 31 | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| MEAN | 41.89 | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |

WTR YR 1993 MEAN 41.89 HIGHEST 38.29 OCT. 20, 1992 LOWEST 42.08 OCT. 30, 1992



GROUND-WATER LEVELS

ST. CROIX, U.S. VIRGIN ISLANDS

174319064454401. Local number, 15.

LOCATION.--Lat 17°43'19", long 64°45'44", Hydrologic Unit 21020002, 2.55 mi northeast of the Alexander Hamilton Airport entrance on Hwy 64, 4.00 mi southwest of Christiansted Plaza, and 2.30 mi northeast of the Experimental Station. Owner: U.S. Virgin Islands Water and Power Authority, Name: WAPA-23a at Barren Spot well field.

AQUIFER.--Post Kingshill Limestone.

WELL CHARACTERISTICS.--Drilled observation well, diameter 4 in (0.10 m), cased 0-110 ft (0-33.5 m), screened 70-110 ft (21.3-33.5 m). Depth 110 ft (33.5 m).

INSTRUMENTATION.--Digital water level recorder--60-minute punch.

DATUM.--Elevation of land-surface datum is about 65 ft (19.8 m) above mean sea level, from topographic map.

Measuring point: Top of shelter floor, 3.50 ft (1.07 m) above land-surface datum.

REMARKS.--Recording observation well.

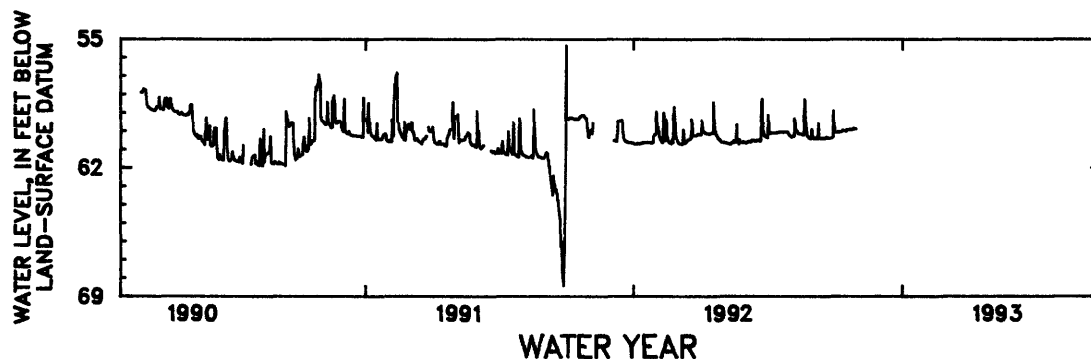
PERIOD OF RECORD.--February 28, 1990 to October 30, 1992, discontinued.

EXTREMES FOR PERIOD OF RECORD.--Highest water level recorded, 55.29 ft (16.8 m) below land-surface datum, Oct. 1, 1991; lowest water level recorded, 69.68 ft (21.3 m) below land-surface datum, Sept. 29, 1991.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993
INSTANTANEOUS OBSERVATION AT 1200

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|------|-------|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| 1 | 60.06 | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 2 | 60.07 | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 3 | 60.07 | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 4 | 60.06 | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 5 | 60.06 | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 6 | 60.06 | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 7 | 60.06 | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 8 | 60.05 | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 9 | 60.04 | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 10 | 60.04 | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 11 | 59.97 | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 12 | 59.98 | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 13 | 59.98 | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 14 | 60.00 | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 15 | 60.00 | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 16 | 60.02 | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 17 | 59.94 | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 18 | 59.94 | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 19 | 59.94 | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 20 | 59.92 | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 21 | 59.92 | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 22 | 59.92 | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 23 | 59.92 | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 24 | 59.91 | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 25 | 59.89 | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 26 | 59.85 | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 27 | 59.88 | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 28 | 59.86 | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 29 | 59.88 | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 30 | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 31 | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| MEAN | 59.98 | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |

WTR YR 1993 MEAN 59.98 HIGHEST 59.14 OCT. 15-16, 1992 LOWEST 60.09 OCT. 16, 1992



GROUND-WATER LEVELS
ST. THOMAS, U.S. VIRGIN ISLANDS

182038064550300. Local number, 6.

LOCATION.--Lat 18°20'38", long 64°55'03", Hydrologic Unit 21020001, 1.12 mi east of Charlotte Amalie, 0.75 mi southwest of Winterberg Peak, and 1.08 mi southeast of Canaan. Owner: U.S. Virgin Islands Government, Name: Grade School 3.

AQUIFER.--Volcanic breccia.

WELL CHARACTERISTICS.--Drilled unused water-table well, diameter 6 in (0.15 m), cased 6 in (0.15 m). Depth 70 ft (21.3 m).

INSTRUMENTATION.--Digital water level recorder--60-minute punch.

DATUM.--Elevation of land-surface datum is about 60 ft (18.3 m) above mean sea level, from topographic map.

Measuring point: Top of 0.5 in (0.01 m) hole at 6 in (0.15 m) casing, 1.30 ft (0.40 m) above land-surface datum. Prior to June 27, 1983, top of 6 in (0.15 m) casing, 2.90 ft (0.88 m) above land-surface datum.

REMARKS.--Recording observation well.

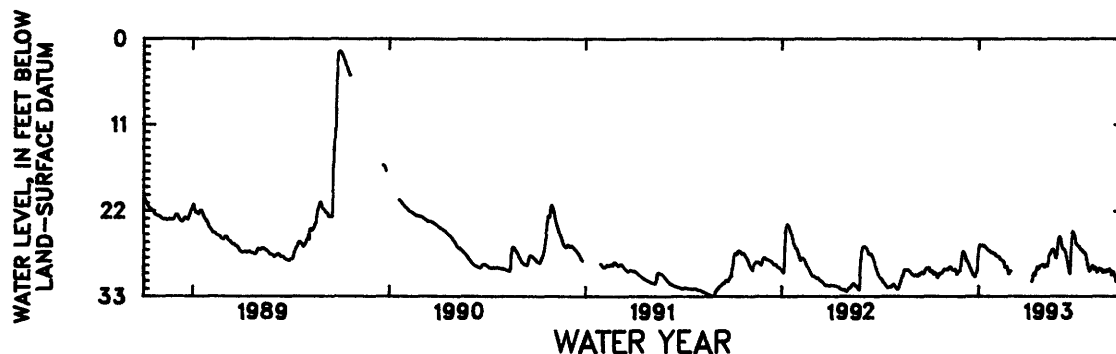
PERIOD OF RECORD.--March 1982 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level recorded, 1.53 ft (0.47 m) below land-surface datum, Oct. 1, 1989; lowest water level recorded, 35.38 ft (10.79 m) below land-surface datum, July 21, 1982.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993
INSTANTANEOUS OBSERVATION AT 1200

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| 1 | 29.30 | 29.51 | 27.67 | 26.90 | 27.57 | 29.80 | --- | 28.82 | 25.39 | 26.21 | 29.04 | 29.49 |
| 2 | 29.34 | 29.52 | 27.30 | 26.45 | 27.74 | 29.73 | --- | 28.96 | 25.63 | 26.31 | 29.23 | 29.46 |
| 3 | 29.56 | 29.51 | 27.17 | 26.33 | 27.81 | --- | --- | 29.21 | 25.98 | 26.37 | 29.51 | 29.65 |
| 4 | 29.81 | 29.47 | 27.21 | 26.37 | 27.80 | --- | --- | 29.22 | 26.42 | 26.46 | 29.51 | 29.96 |
| 5 | 29.81 | 29.52 | 27.34 | 26.40 | 27.81 | --- | --- | 29.05 | 26.75 | 26.50 | 29.35 | 30.25 |
| 6 | 29.70 | 29.48 | 27.52 | 26.46 | 27.88 | --- | --- | 28.88 | 26.86 | 26.53 | 29.25 | 30.14 |
| 7 | 29.69 | 29.36 | 27.77 | 26.48 | 27.90 | --- | --- | 28.80 | 26.87 | 26.63 | 29.38 | 29.86 |
| 8 | 29.80 | 29.25 | 28.02 | 26.41 | 27.88 | --- | --- | 28.87 | 26.92 | 26.78 | 29.63 | 29.79 |
| 9 | 30.01 | 29.18 | 28.24 | 26.38 | 27.98 | --- | 31.07 | 29.02 | 27.00 | 26.94 | 29.87 | 29.93 |
| 10 | 30.13 | 29.18 | 28.38 | 26.42 | 28.17 | --- | 30.99 | 28.68 | 27.11 | 27.00 | 29.85 | 30.23 |
| 11 | 30.03 | 29.23 | 28.43 | 26.45 | 28.28 | --- | 30.59 | 28.05 | 27.29 | 27.00 | 29.63 | 30.58 |
| 12 | 29.90 | 29.39 | 28.56 | 26.50 | 28.26 | --- | 30.29 | 27.63 | 27.57 | 26.98 | 29.54 | 30.86 |
| 13 | --- | 29.52 | 28.73 | 26.61 | 28.30 | --- | 30.10 | 27.49 | 27.91 | 27.10 | 29.44 | 31.08 |
| 14 | 30.04 | 29.55 | 28.90 | 26.68 | 28.39 | --- | 29.99 | 27.51 | 28.26 | 27.26 | 29.42 | 31.01 |
| 15 | 30.30 | 29.57 | 29.09 | 26.74 | 28.39 | --- | 30.07 | 27.29 | 28.63 | 27.32 | 29.58 | 30.57 |
| 16 | 30.56 | 29.60 | 29.27 | 26.83 | 28.43 | --- | 30.26 | 27.11 | 28.98 | 27.32 | 29.61 | 30.13 |
| 17 | 30.55 | 29.60 | 29.42 | 26.96 | 28.59 | --- | 30.10 | 27.01 | 29.31 | 27.34 | 29.50 | 29.74 |
| 18 | 30.33 | 29.52 | 29.56 | 27.03 | 28.89 | --- | 29.67 | 26.96 | 29.66 | 27.47 | 29.52 | 29.39 |
| 19 | 30.15 | 29.50 | 29.72 | 27.01 | 29.21 | --- | 29.29 | 26.94 | 29.94 | 27.70 | 29.71 | 29.32 |
| 20 | 30.09 | 29.63 | 29.87 | 27.05 | 29.25 | --- | 29.17 | 26.97 | 30.06 | 28.01 | 29.91 | 29.52 |
| 21 | 30.17 | 29.86 | 30.03 | 27.14 | 29.16 | --- | 29.25 | 27.11 | 27.72 | 28.34 | 29.82 | 29.74 |
| 22 | 30.07 | 30.12 | 30.17 | 27.23 | 29.12 | --- | 29.46 | 27.39 | 26.10 | 28.70 | 29.65 | 29.54 |
| 23 | 29.98 | 30.05 | 30.34 | 27.25 | 29.23 | --- | 29.40 | 27.78 | 25.24 | 29.03 | 29.69 | 29.16 |
| 24 | 30.02 | 29.88 | 30.44 | 27.26 | 29.45 | --- | 29.18 | 28.00 | 24.79 | 29.32 | 29.87 | 28.95 |
| 25 | 30.00 | 29.76 | 30.44 | 27.33 | 29.78 | --- | 29.03 | 28.03 | 24.63 | 29.59 | 29.86 | 28.94 |
| 26 | 29.92 | 29.72 | 30.35 | 27.35 | 30.08 | --- | 29.03 | 27.68 | 24.70 | 29.73 | 29.66 | 29.02 |
| 27 | 29.75 | 29.69 | 30.19 | 27.34 | 30.09 | --- | 29.04 | 26.92 | 24.92 | 29.61 | 29.65 | 29.16 |
| 28 | 29.62 | 29.61 | 29.94 | 27.39 | 29.93 | --- | 28.95 | 26.11 | 25.22 | 29.42 | 29.80 | 29.05 |
| 29 | 29.52 | 29.02 | 29.77 | 27.48 | --- | --- | 28.89 | 25.59 | 25.59 | 29.26 | 29.75 | 28.76 |
| 30 | 29.49 | 28.36 | 29.52 | 27.49 | --- | --- | 28.84 | 25.36 | 25.96 | 29.13 | 29.60 | 28.47 |
| 31 | 29.49 | --- | 27.95 | 27.48 | --- | --- | --- | 25.31 | --- | 29.02 | 29.58 | --- |
| MEAN | 29.90 | 29.51 | 28.95 | 26.88 | 28.62 | 29.76 | 29.67 | 27.67 | 26.91 | 27.75 | 29.59 | 29.72 |

WTR YR 1993 MEAN 28.63 HIGHEST 24.62 JUNE 25, 1993 LOWEST 31.12 SEPT. 13-14, 1993



GROUND-WATER LEVELS

ST. THOMAS, U.S. VIRGIN ISLANDS

182036064545200. Local number, 7.

LOCATION.--Lat 18°20'36", long 64°54'52", Hydrologic Unit 21020001, 1.33 mi east of Charlotte Amalie, 0.55 mi southwest of Winterberg Peak, and 1.20 mi southeast of Cansaan. Owner: U.S. Virgin Islands Water and Power Authority, Name: St. Thomas Hospital, VIEO-1.

AQUIFER.--Fractured, volcanic rock, water-table aquifer.

WELL CHARACTERISTICS.--Drilled observation water-table well, diameter 7 in (0.18 m), cased 4 in (0.10 m), 0-145 ft (0-44.2 m), screened 100-145 ft (30.5-44.2 m). Depth 145 ft (44.2 m).

INSTRUMENTATION.--Digital water level recorder--60-minute punch.

DATUM.--Elevation of land-surface datum is about 85 ft (25.9 m) above mean sea level, from topographic map.

Measuring point: Top of shelter floor, 3.20 ft (0.97 m) above land-surface datum.

REMARKS.--Observation well. Drilled on February 1991. Automated digital recorder installed on May 1991. Pumping test performed during May 22-24, 1991.

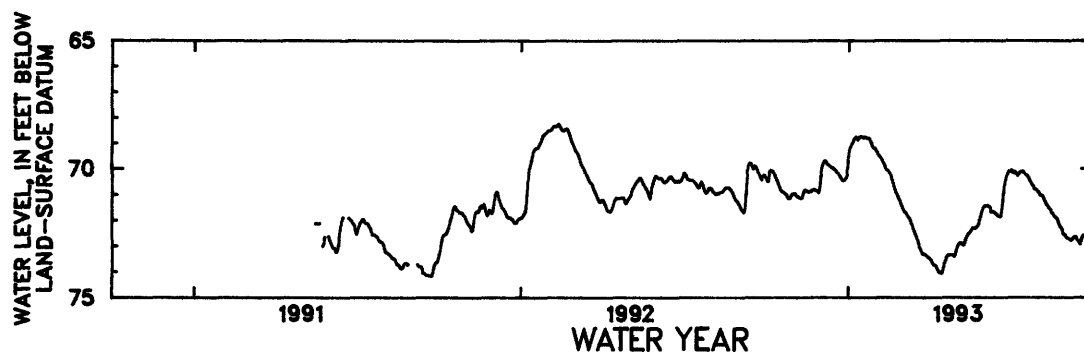
PERIOD OF RECORD.--May 1991 to October 5, 1993, discontinued.

EXTREMES FOR PERIOD OF RECORD.--Highest water level recorded, 68.23 ft (20.8 m) below land-surface datum, Feb. 11, 1992; lowest water level recorded, 74.17 ft (22.6 m) below land-surface datum, Sept. 22-23, 1991.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993
INSTANTANEOUS OBSERVATION AT 1200

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| 1 | 70.42 | 70.98 | 70.22 | 69.50 | 69.34 | 71.46 | 73.47 | 73.16 | 71.47 | 70.10 | 70.91 | 72.67 |
| 2 | 70.50 | 70.97 | 69.95 | 69.25 | 69.41 | 71.55 | 73.53 | 73.04 | 71.43 | 70.06 | 71.01 | 72.68 |
| 3 | 70.49 | 71.05 | 69.83 | 69.14 | 69.49 | 71.62 | 73.55 | 72.96 | 71.45 | 70.15 | 71.05 | 72.70 |
| 4 | 70.22 | 71.09 | 69.76 | 69.06 | 69.51 | 71.69 | 73.63 | 72.91 | 71.44 | 70.17 | 71.04 | 72.74 |
| 5 | 70.09 | 71.09 | 69.71 | 69.00 | 69.56 | 71.71 | 73.70 | 72.88 | 71.43 | 70.13 | 71.05 | 72.76 |
| 6 | 70.06 | 71.12 | 69.71 | 68.92 | 69.60 | 71.75 | 73.74 | 72.90 | 71.46 | 70.11 | 71.11 | 72.78 |
| 7 | 70.09 | 71.15 | 69.76 | 68.83 | 69.68 | 71.82 | 73.74 | 72.89 | 71.48 | 70.20 | 71.22 | 72.74 |
| 8 | 70.09 | 71.15 | 69.82 | 68.78 | 69.75 | 71.86 | 73.76 | 72.95 | 71.51 | 70.28 | 71.27 | 72.70 |
| 9 | 70.15 | 71.15 | 69.84 | 68.76 | 69.81 | 71.92 | 73.84 | 72.97 | 71.71 | 70.21 | 71.35 | 72.66 |
| 10 | 70.24 | 71.12 | 69.87 | 68.84 | 69.90 | 71.96 | 73.91 | 72.89 | 71.68 | 70.20 | 71.41 | 72.65 |
| 11 | 70.35 | 70.95 | 69.91 | 68.88 | 69.98 | 72.03 | 73.98 | 72.78 | 71.67 | 70.15 | 71.46 | 72.64 |
| 12 | 70.42 | 70.85 | 69.92 | 68.82 | 70.05 | 72.15 | 74.02 | 72.70 | 71.67 | 70.13 | 71.51 | 72.65 |
| 13 | 70.48 | 70.83 | 69.96 | 68.75 | 70.07 | 72.22 | 74.01 | 72.62 | 71.73 | 70.12 | 71.55 | 72.77 |
| 14 | 70.60 | 70.84 | 69.99 | 68.75 | 70.10 | 72.35 | 74.04 | 72.57 | 71.76 | 70.10 | 71.60 | 72.81 |
| 15 | 70.69 | 70.86 | 69.98 | 68.75 | 70.14 | 72.43 | 74.05 | 72.52 | 71.77 | 70.11 | 71.71 | 72.88 |
| 16 | 70.78 | 70.89 | 70.03 | 68.75 | 70.22 | 72.53 | 73.94 | 72.49 | 71.82 | 70.17 | 71.73 | 72.93 |
| 17 | 70.85 | 70.90 | 70.05 | 68.78 | 70.34 | 72.60 | 73.79 | 72.45 | 71.85 | 70.22 | 71.75 | 72.81 |
| 18 | 70.88 | 70.88 | 70.10 | 68.79 | 70.46 | 72.70 | 73.65 | 72.37 | 71.85 | 70.26 | 71.84 | 72.72 |
| 19 | 70.91 | 70.90 | 70.15 | 68.76 | 70.56 | 72.81 | 73.54 | 72.32 | 71.87 | 70.26 | 71.88 | 72.63 |
| 20 | 70.93 | 70.89 | 70.17 | 68.78 | 70.69 | 72.95 | 73.44 | 72.30 | 71.84 | 70.35 | 71.89 | 72.58 |
| 21 | 70.96 | 70.83 | 70.24 | 68.80 | 70.81 | 73.08 | 73.39 | 72.31 | 71.54 | 70.38 | 71.94 | 72.62 |
| 22 | 70.98 | 70.83 | 70.32 | 68.81 | 70.93 | 73.15 | 73.35 | 72.33 | 71.14 | 70.47 | 71.98 | 72.66 |
| 23 | 71.02 | 70.81 | 70.37 | 68.80 | 70.97 | 73.21 | 73.35 | 72.31 | 70.81 | 70.53 | 72.11 | 72.61 |
| 24 | 71.10 | 70.83 | 70.42 | 68.85 | 71.04 | 73.31 | 73.34 | 72.26 | 70.59 | 70.60 | 72.18 | 72.58 |
| 25 | 71.16 | 70.86 | 70.47 | 68.95 | 71.15 | 73.31 | 73.34 | 72.22 | 70.42 | 70.66 | 72.26 | 72.51 |
| 26 | 71.17 | 70.86 | 70.47 | 68.98 | 71.21 | 73.31 | 73.35 | 72.15 | 70.28 | 70.68 | 72.29 | 72.47 |
| 27 | 71.14 | 70.87 | 70.45 | 69.12 | 71.26 | 73.34 | 73.35 | 71.99 | 70.20 | 70.78 | 72.35 | 72.43 |
| 28 | 71.05 | 70.94 | 70.39 | 69.18 | 71.38 | 73.36 | 73.36 | 71.87 | 70.16 | 70.81 | 72.50 | 72.38 |
| 29 | 71.01 | 70.81 | 70.36 | 69.19 | --- | 73.39 | 73.41 | 71.72 | 70.10 | 70.82 | 72.55 | 72.32 |
| 30 | 70.98 | 70.56 | 70.25 | 69.20 | --- | 73.43 | 73.32 | 71.61 | 70.12 | 70.84 | 72.58 | 72.26 |
| 31 | 70.97 | --- | 69.90 | 69.27 | --- | 73.46 | --- | 71.53 | --- | 70.89 | 72.58 | --- |
| MEAN | 70.67 | 70.93 | 70.08 | 68.94 | 70.26 | 72.53 | 73.63 | 72.48 | 71.27 | 70.35 | 71.73 | 72.64 |

WTR YR 1993 MEAN 71.29 HIGHEST 68.72 JAN. 13, 15, 1993 LOWEST 74.06 APR. 14, 15, 1993



GROUND-WATER LEVELS

ST. THOMAS, U.S. VIRGIN ISLANDS

182038064580000. Local number, 8.

LOCATION.--Lat 18°20'38", long 64°58'00", Hydrologic Unit 21020001, 2.08 mi northwest of Charlotte Amalie, 0.50 mi northeast of Harry S. Truman Airport entrance on Hwy 302, and 1.15 mi southwest of Dorothea. Owner: U.S. Virgin Islands Water and Power Authority, Name: Kirwan Terrace, VIBO-6.

AQUIFER.--Alluvial deposits, volcanic rock.

WELL CHARACTERISTICS.--Drilled observation well, diameter 4 in (0.10 m), cased 0-56 in (0-17.1 m), screened 56-76 ft (17.1-23.2 m). Depth 76 ft (23.2 m).

INSTRUMENTATION.--Digital water level recorder--60-minute punch.

DATUM.--Elevation of land-surface datum is about 35 ft (10.7 m) above mean sea level, from topographic map.

Measuring point: Top of shelter floor, 3.00 ft (0.91 m) above land-surface datum.

REMARKS.--Observation well. Drilled on July 1, 1991. Automated digital recorder installed on October 2, 1991.

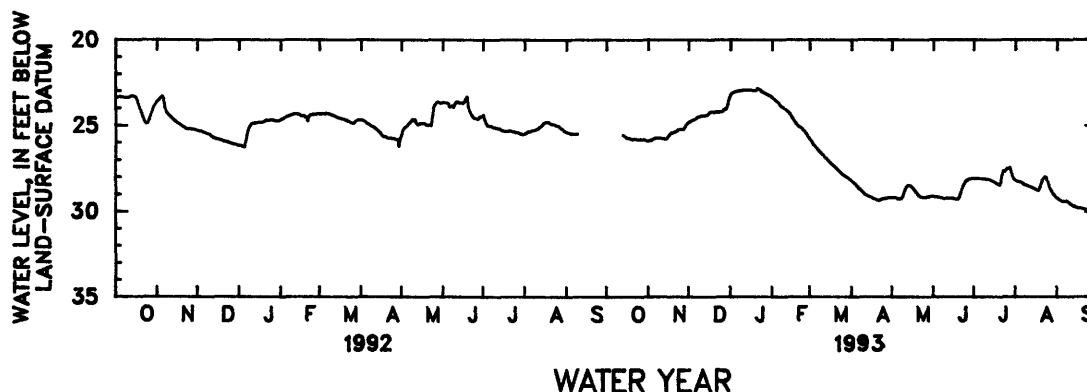
PERIOD OF RECORD.--October 1991 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level recorded, 22.79 ft (6.95 m) below land-surface datum, Jan. 21, 1993; lowest water level recorded, 30.09 ft (9.17 m) below land-surface datum, Sept. 30, 1993.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993
INSTANTANEOUS OBSERVATION AT 1200

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| 1 | --- | 25.90 | 24.78 | 23.25 | 23.37 | 25.80 | 28.22 | 29.19 | 29.12 | 28.07 | 28.20 | 29.22 |
| 2 | --- | 25.85 | 24.74 | 23.12 | 23.44 | 25.91 | 28.29 | 29.18 | 29.13 | 28.08 | 28.24 | 29.28 |
| 3 | --- | 25.85 | 24.70 | 23.07 | 23.52 | 26.04 | 28.37 | 29.17 | 29.14 | 28.07 | 28.27 | 29.33 |
| 4 | --- | 25.80 | 24.65 | 23.04 | 23.58 | 26.15 | 28.45 | 29.20 | 29.14 | 28.06 | 28.28 | 29.37 |
| 5 | --- | 25.77 | 24.63 | 23.02 | 23.64 | 26.22 | 28.54 | 29.25 | 29.18 | 28.07 | 28.29 | 29.41 |
| 6 | --- | 25.73 | 24.59 | 22.99 | 23.72 | 26.32 | 28.63 | 29.25 | 29.19 | 28.08 | 28.35 | 29.40 |
| 7 | --- | 25.72 | 24.52 | 22.98 | 23.82 | 26.42 | 28.70 | 29.25 | 29.20 | 28.08 | 28.42 | 29.38 |
| 8 | --- | 25.71 | 24.48 | 22.97 | 23.91 | 26.49 | 28.78 | 29.23 | 29.23 | 28.09 | 28.45 | 29.39 |
| 9 | --- | 25.71 | 24.45 | 22.95 | 23.94 | 26.57 | 28.86 | 29.11 | 29.24 | 28.10 | 28.47 | 29.43 |
| 10 | --- | 25.73 | 24.42 | 22.94 | 24.01 | 26.65 | 28.93 | 28.88 | 29.23 | 28.12 | 28.50 | 29.50 |
| 11 | --- | 25.74 | 24.42 | 22.92 | 24.08 | 26.72 | 29.01 | 28.68 | 29.21 | 28.13 | 28.54 | 29.57 |
| 12 | --- | 25.76 | 24.41 | 22.92 | 24.15 | 26.81 | 29.05 | 28.55 | 29.21 | 28.14 | 28.57 | 29.63 |
| 13 | 25.57 | 25.78 | 24.41 | 22.92 | 24.23 | 26.89 | 29.09 | 28.48 | 29.21 | 28.17 | 28.60 | 29.67 |
| 14 | 25.61 | 25.78 | 24.39 | 22.92 | 24.32 | 26.98 | 29.13 | 28.47 | 29.22 | 28.19 | 28.63 | 29.70 |
| 15 | 25.67 | 25.71 | 24.34 | 22.93 | 24.45 | 27.06 | 29.15 | 28.51 | 29.22 | 28.24 | 28.67 | 29.75 |
| 16 | 25.72 | 25.59 | 24.25 | 22.92 | 24.56 | 27.14 | 29.19 | 28.57 | 29.24 | 28.27 | 28.72 | 29.78 |
| 17 | 25.73 | 25.49 | 24.20 | 22.94 | 24.71 | 27.21 | 29.24 | 28.66 | 29.26 | 28.33 | 28.75 | 29.78 |
| 18 | 25.75 | 25.43 | 24.19 | 22.95 | 24.80 | 27.28 | 29.26 | 28.76 | 29.27 | 28.39 | 28.78 | 29.79 |
| 19 | 25.79 | 25.42 | 24.20 | 22.94 | 24.93 | 27.36 | 29.30 | 28.87 | 29.28 | 28.43 | 28.57 | 29.82 |
| 20 | 25.81 | 25.38 | 24.20 | 22.94 | 25.02 | 27.43 | 29.33 | 28.97 | 29.17 | 28.46 | 28.34 | 29.83 |
| 21 | 25.79 | 25.35 | 24.21 | 22.83 | 25.08 | 27.51 | 29.35 | 29.06 | 28.92 | 28.27 | 28.18 | 29.85 |
| 22 | 25.78 | 25.30 | 24.20 | 22.86 | 25.10 | 27.59 | 29.32 | 29.13 | 28.69 | 27.91 | 28.06 | 29.87 |
| 23 | 25.79 | 25.24 | 24.21 | 22.91 | 25.17 | 27.65 | 29.28 | 29.17 | 28.48 | 27.62 | 27.98 | 29.90 |
| 24 | 25.82 | 25.22 | 24.20 | 23.01 | 25.26 | 27.73 | 29.25 | 29.18 | 28.34 | 27.68 | 28.00 | 29.92 |
| 25 | 25.82 | 25.20 | 24.19 | 23.05 | 25.35 | 27.80 | 29.23 | 29.18 | 28.24 | 27.58 | 28.26 | 29.94 |
| 26 | 25.80 | 25.21 | 24.16 | 23.10 | 25.46 | 27.87 | 29.23 | 29.18 | 28.18 | 27.49 | 28.51 | 29.99 |
| 27 | 25.81 | 25.19 | 24.09 | 23.14 | 25.58 | 27.92 | 29.22 | 29.15 | 28.13 | 27.49 | 28.71 | 30.00 |
| 28 | 25.82 | 25.08 | 24.04 | 23.19 | 25.69 | 27.98 | 29.19 | 29.12 | 28.09 | 27.44 | 28.86 | 30.04 |
| 29 | 25.84 | 24.94 | 24.00 | 23.22 | --- | 28.02 | 29.19 | 29.12 | 28.08 | 27.71 | 28.98 | 30.07 |
| 30 | 25.87 | 24.85 | 23.78 | 23.27 | --- | 28.07 | 29.19 | 29.10 | 28.07 | 27.97 | 29.07 | 30.07 |
| 31 | 25.90 | --- | 23.45 | 23.30 | --- | 28.15 | --- | 29.10 | --- | 28.12 | 29.15 | --- |
| MEAN | 25.77 | 25.51 | 24.31 | 23.02 | 24.46 | 27.09 | 29.00 | 28.99 | 28.91 | 28.03 | 28.50 | 29.69 |

WTR YR 1993 MEAN 26.98 HIGHEST 22.79 JAN. 21, 1993 LOWEST 30.09 SEPT. 30, 1993



GROUND-WATER LEVELS

ST. THOMAS, U.S. VIRGIN ISLANDS

181917064524600. Local number, 9.

LOCATION.--Lat 18°19'17", long 64°52'46", Hydrologic Unit 21020001, 0.20 mi southwest of Nadir, 1.25 mi northeast of Bolongo Bay Resort, and 1.95 mi southwest of the National Park Service Visitors Information Center at Red Hook.
Owner: U.S. Virgin Islands Water and Power Authority, Name: Race Track, VIEO-9.

AQUIFER.--Alluvial deposits, volcanic rock.

WELL CHARACTERISTICS.--Drilled observation well, diameter 4 in (0.10 m), cased 0-6 in (0-1.83 m), screened 6-35 ft (1.83-10.7 m). Depth 35 ft (10.7 m).

INSTRUMENTATION.--Digital water level recorder--60-minute punch.

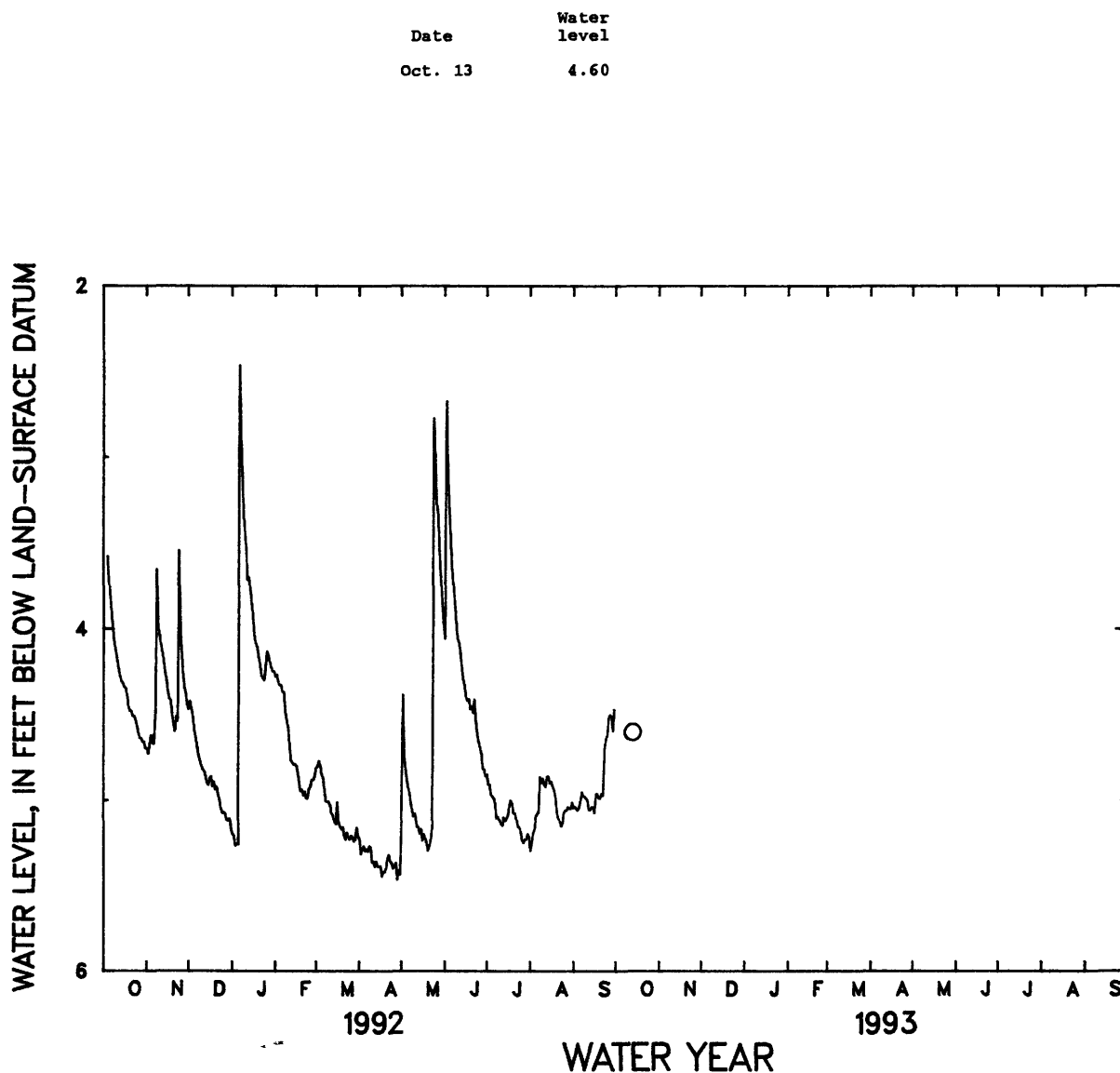
DATUM.--Elevation of land-surface datum is about 15 ft (4.57 m) above mean sea level, from topographic map.
Measuring point: Top of shelter floor, 3.00 ft (0.91 m) above land-surface datum.

REMARKS.--Observation well. Drilled on July 10, 1991. Automated digital recorder installed on October 3, 1991.

PERIOD OF RECORD.--October 1991 to October 1992, discontinued.

EXTREMES FOR PERIOD OF RECORD.--Highest water level recorded, 2.37 ft (0.72 m) below land-surface datum, Jan. 6, 1992; lowest water level recorded, 5.49 ft (1.67 m) below land-surface datum, Apr. 18, 1992.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993
INSTANTANEOUS OBSERVATIONS



GROUND-WATER LEVELS

ST. THOMAS, U.S. VIRGIN ISLANDS

182131064541000. Local number, 10.

LOCATION.--Lat 18°21'31", long 64°54'10", Hydrologic Unit 21020001, 2.35 mi northeast of Charlotte Amalie, 0.92 mi northeast of Winterberg Peak, and 1.22 mi southeast of Canaan. Owner: U.S. Virgin Islands Water and Power Authority, Name: Highway 42 dead end, VIEO-10.

AQUIFER.--Alluvial deposits, volcanic rock.

WELL CHARACTERISTICS.--Drilled observation well, diameter 4 in (0.10 m), cased 0-27 in (0-8.23 m), screened 27-53 ft (8.23-16.2 m). Depth 53 ft (16.2 m).

INSTRUMENTATION.--Digital water level recorder--60-minute punch.

DATUM.--Elevation of land-surface datum is about 155 ft (47.2 m) above mean sea level, from topographic map. Measuring point: Top of shelter floor, 3.00 ft (0.91 m) above land-surface datum.

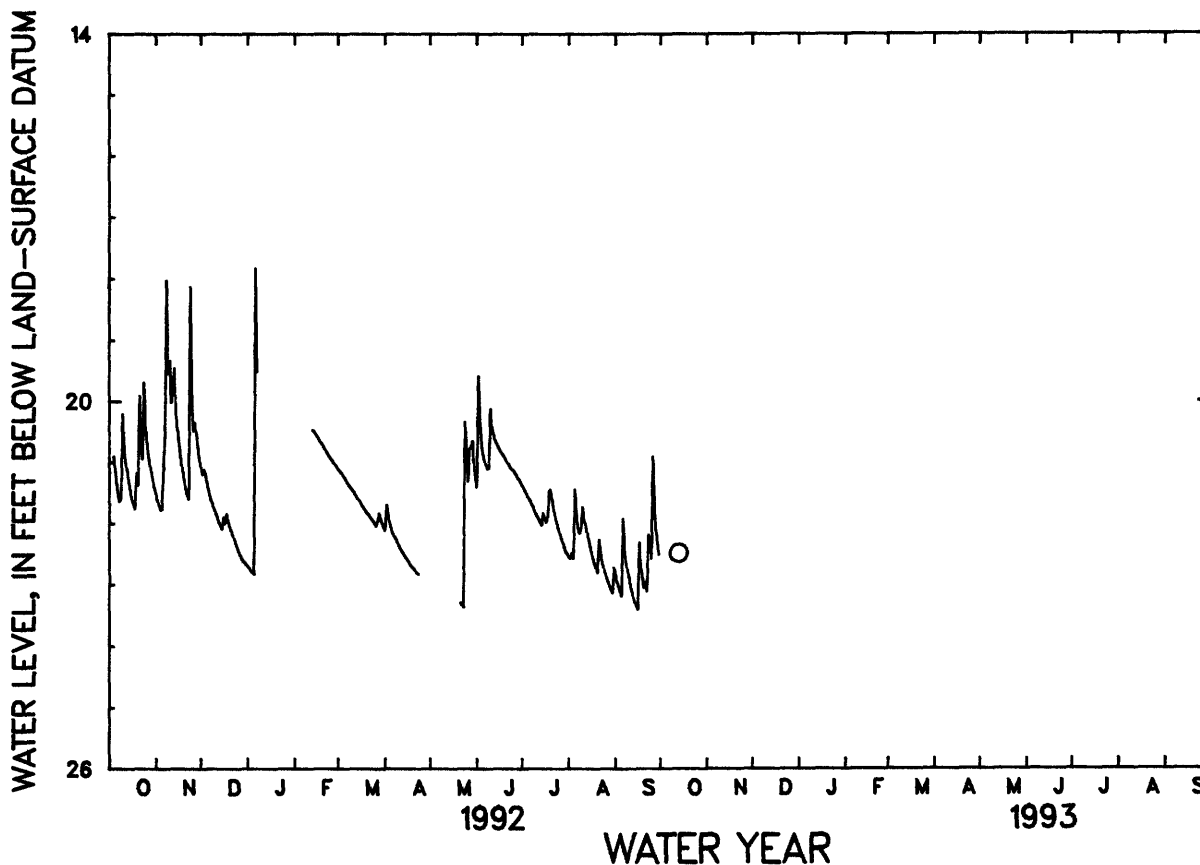
REMARKS.--Observation well. Drilled on July 15, 1991. Automated digital recorder installed on October 3, 1991.

PERIOD OF RECORD.--October 1991 to October 1992, discontinued.

EXTREMES FOR PERIOD OF RECORD.--Highest water level recorded, 16.67 ft (5.08 m) below land-surface datum, Jan. 6, 1992; lowest water level recorded, 23.43 ft (7.14 m) below land-surface datum, Sept. 16, 1992.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993
INSTANTANEOUS OBSERVATIONS

| Date | Water level |
|---------|-------------|
| Oct. 13 | 22.48 |



GROUND-WATER LEVELS

ST. THOMAS, U.S. VIRGIN ISLANDS

182035064550200. Local number, 11.

LOCATION.--Lat 18°20'35", long 64°55'02", Hydrologic Unit 21020001, 0.85 mi east of Fort Christian in Charlotte Amalie town, 0.10 mi north of HWY 310 on Pearson Gardens area, and 0.72 mi southwest of Winterberg Peak.
Owner: U.S. Virgin Islands Water and Power Authority, Name: Lockhart School, VIEO-11.

AQUIFER.--Alluvial deposits, volcanic rock.

WELL CHARACTERISTICS.--Drilled observation well, diameter 4 in (0.10 m), cased 0-90 in (0-27.4 m), screened 90-110 ft (27.4-33.5 m). Depth 110 ft (33.5 m).

INSTRUMENTATION.--Digital water level recorder--60-minute punch.

DATUM.--Elevation of land-surface datum is about 40 ft (12.2 m) above mean sea level, from topographic map.
Measuring point: Top of shelter floor, 2.50 ft (0.76 m) above land-surface datum.

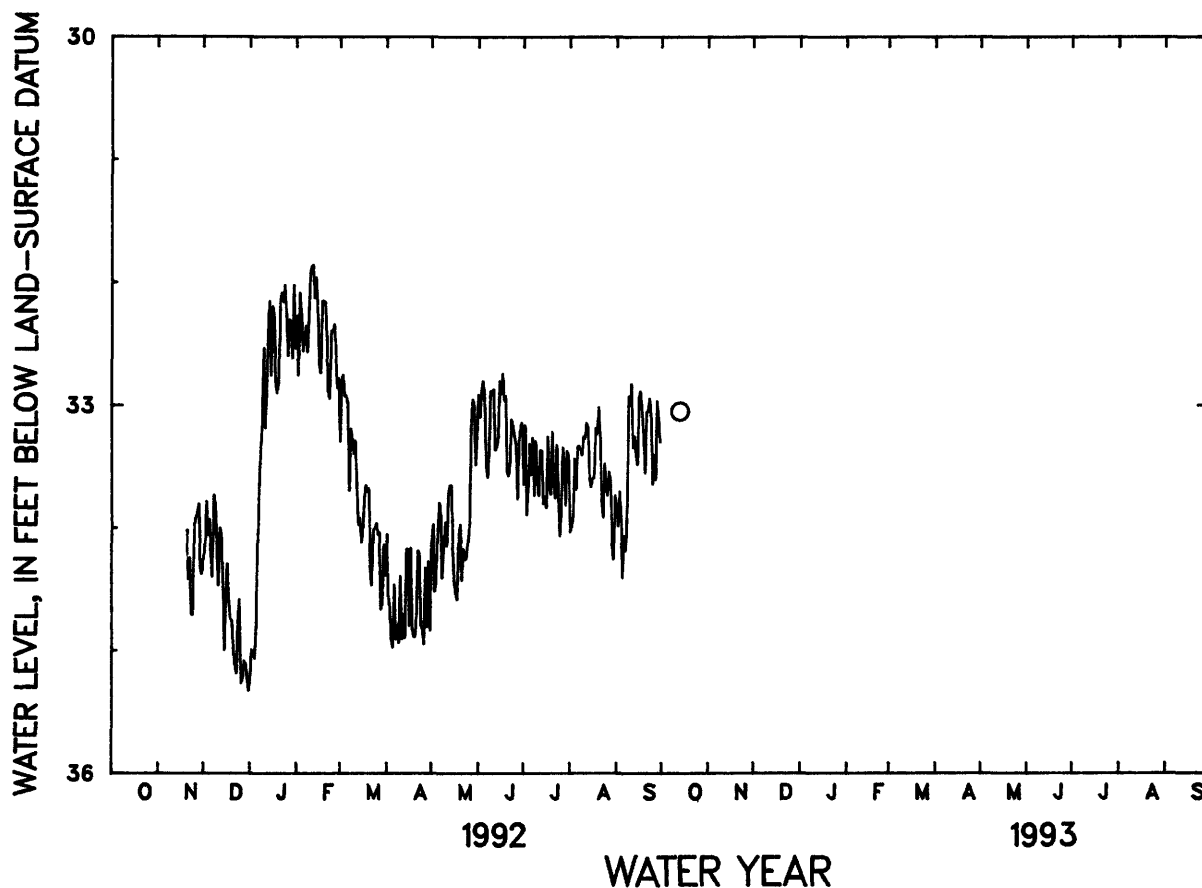
REMARKS.--Observation well. Drilled on July 23, 1991. Automated digital recorder installed on November 19, 1991.

PERIOD OF RECORD.--November 1991 to October 1992, discontinued.

EXTREMES FOR PERIOD OF RECORD.--Highest water level recorded, 31.78 ft (9.69 m) below land-surface datum, Feb. 12, 1992; lowest water level recorded, 35.42 ft (10.8 m) below land-surface datum, Dec. 31, 1991.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993
INSTANTANEOUS OBSERVATIONS

| Date | Water level |
|---------|-------------|
| Oct. 13 | 33.05 |



GROUND-WATER LEVELS
ST. JOHN, U.S. VIRGIN ISLANDS

182010064472600. Local number, 1.

LOCATION.--Lat 18°20'10", long 64°47'26", Hydrologic Unit 21020001, 0.40 mi southeast from Cruz Bay plaza, 0.30 mi southwest of Caneel Hill, and 0.32 mi northeast of the Government House at Cruz Bay. Owner: U.S. Virgin Islands Government, National Park Services, Name: NPS-2 (Cruz Bay).

AQUIFER.--Volcanic rocks of Cretaceous Age.

WELL CHARACTERISTICS.--Drilled unused water-table well, diameter 6 in (0.15 m), 4 in (0.10 m) cased, 0-20 ft (0-6.10 m), open hole 20-99 ft (6.10-30.2 m). Depth 99 ft (30.2 m).

INSTRUMENTATION.--Monthly measurement with chalked steel tape by USGS personnel.

DATUM.--Elevation of land-surface datum is 60 ft (18.3 m) above mean sea level, from topographic map.
Measuring point: Top of 4 in (0.10 m) casing, 4.10 ft (1.25 m) above old land-surface datum after 1.40 ft (0.43 m) land fill and 2.70 ft (0.82 m) casing extension occurred. Prior to June 29, 1983, top of 4 in (0.10 m) casing, 1.40 ft (0.43 m) above land-surface datum.

REMARKS.--Observation well. Water levels affected by pumping nearby well.

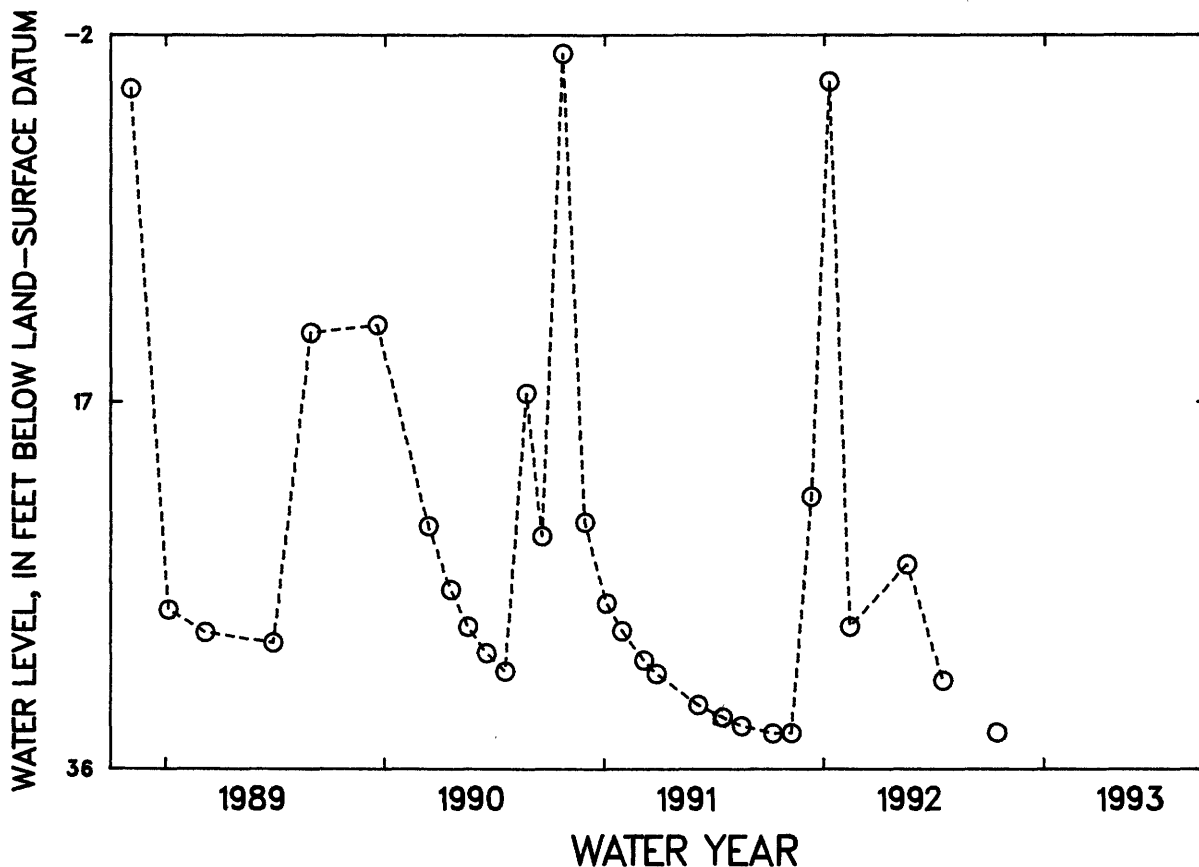
PERIOD OF RECORD.--May 1964, discontinued. June 30, 1983 to October 1992, discontinued.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, +1.41 ft (0.43 m) above land-surface datum, May 1, 1986; lowest water level measured, 42.56 ft (12.98 m) below land-surface datum, Aug. 30, 1967.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993
INSTANTANEOUS OBSERVATIONS

| Date | Water level |
|---------|-------------|
| Oct. 15 | 34.10 |

+ Above land-surface datum.



GROUND-WATER LEVELS

ST. JOHN, U.S. VIRGIN ISLANDS

182109064460300. Local number, 2.

LOCATION.--Lat 18°21'09", long 64°46'03", Hydrologic Unit 21020001, 2.28 mi northeast of Cruz Bay Plaza, 2.20 mi northeast of the Government House at Cruz Bay, and 0.10 mi south of entrance to Trunk Bay on Hwy 20. Owner: U.S. Virgin Islands Government, National Park Service, Name: NPS-5 (Trunk Bay).

AQUIFER.--Volcanic rocks of Cretaceous Age.

WELL CHARACTERISTICS.--Drilled water-table production well, diameter 6 in (0.15 m), cased 0-12 ft (0-3.66 m), open hole 12-60 ft (3.66-18.3 m). Depth 60 ft (18.3 m).

INSTRUMENTATION.--Monthly measurement with chalked steel tape by USGS personnel.

DATUM.--Elevation of land-surface datum is 60 ft (18.3 m) above mean sea level, from topographic map.

Measuring point: Top of 6 in (0.15 m) casing, 0.70 ft (0.21 m) above land-surface datum. Prior to Mar. 24, 1982 top of 6 in (0.15 m) casing, 1.00 ft (0.30 m) above land-surface datum.

REMARKS.--Active water supply well for recreation facilities at Trunk Bay.

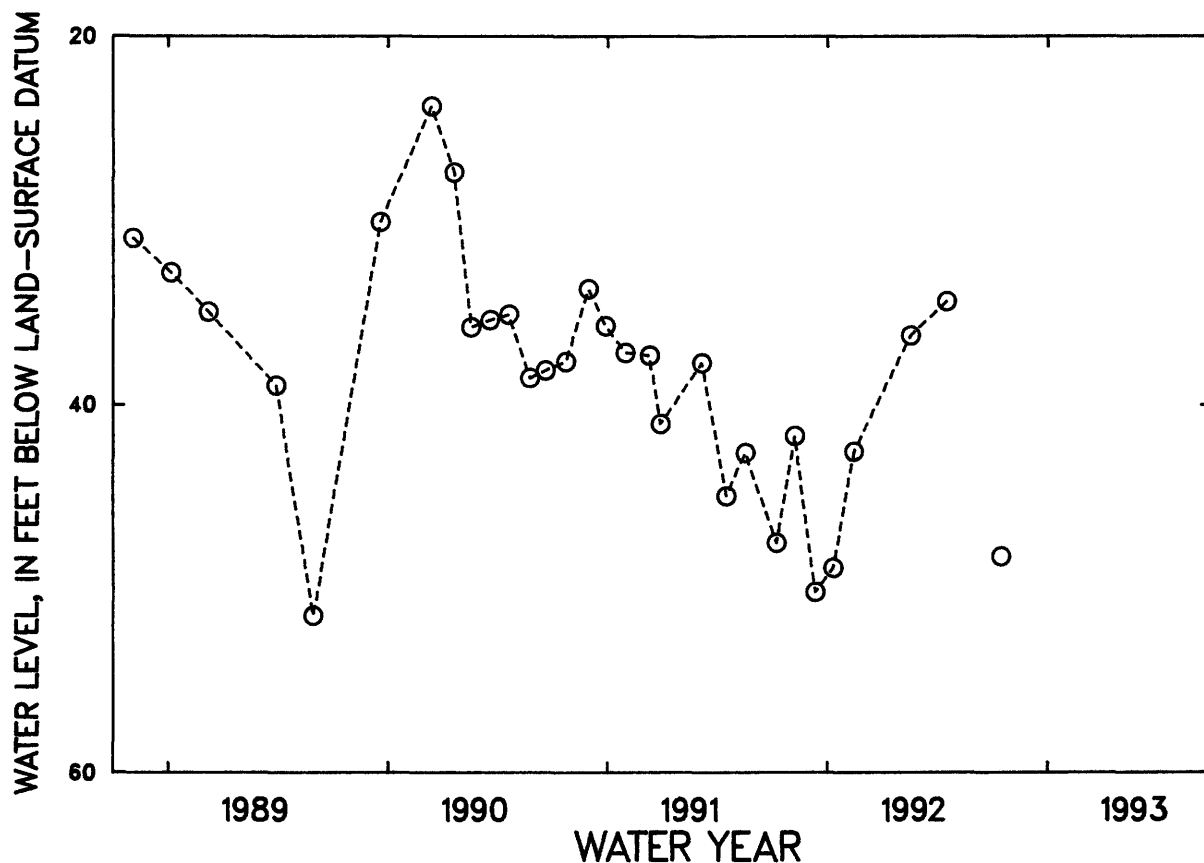
PERIOD OF RECORD.--August 1964 to December 1969, discontinued. March 1982 to October 1992, discontinued.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 12.83 ft (3.91 m) below land-surface datum, Jan. 24, 1985; lowest water level measured, a57.29 ft (17.47 m) below land-surface datum, Nov. 27, 1968.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993
INSTANTANEOUS OBSERVATIONS

| Date | Water level |
|---------|-------------|
| Oct. 15 | a48.24 |

a Pumping.



GROUND-WATER LEVELS
ST. JOHN, U.S. VIRGIN ISLANDS1

182116064451000. Local number, 3.

LOCATION.--Lat 18°21'16", long 64°45'10", Hydrologic Unit 21020001, 3.08 mi northeast of Crus Bay plaza, 2.62 mi northwest of Coral Bay, and 0.95 mi northwest of Mamey Peak. Owner: U.S. Virgin Islands Government, National Park Service, Name: NPS-6 (Cinnamon Bay).

AQUIFER.--Volcanic rocks of Cretaceous Age.

WELL CHARACTERISTICS.--Drilled water-table abandoned production well, diameter 6-in (0.15 m), cased 0-51 ft (0-15.55 m), open hole 51-70 ft (15.55-21.34 m). Depth 70 ft (21.34 m).

INSTRUMENTATION.--Digital water level recorder--60-minute punch.

DATUM.--Elevation of land-surface datum is about 60 ft (18.3 m) above mean sea level, from topographic map. Measuring point: Hole on 6 in (0.15 m) casing, 2.00 ft (0.61 m) above land-surface datum. Prior to June 29, 1983, top of 6 in (0.15 m) casing at land-surface datum.

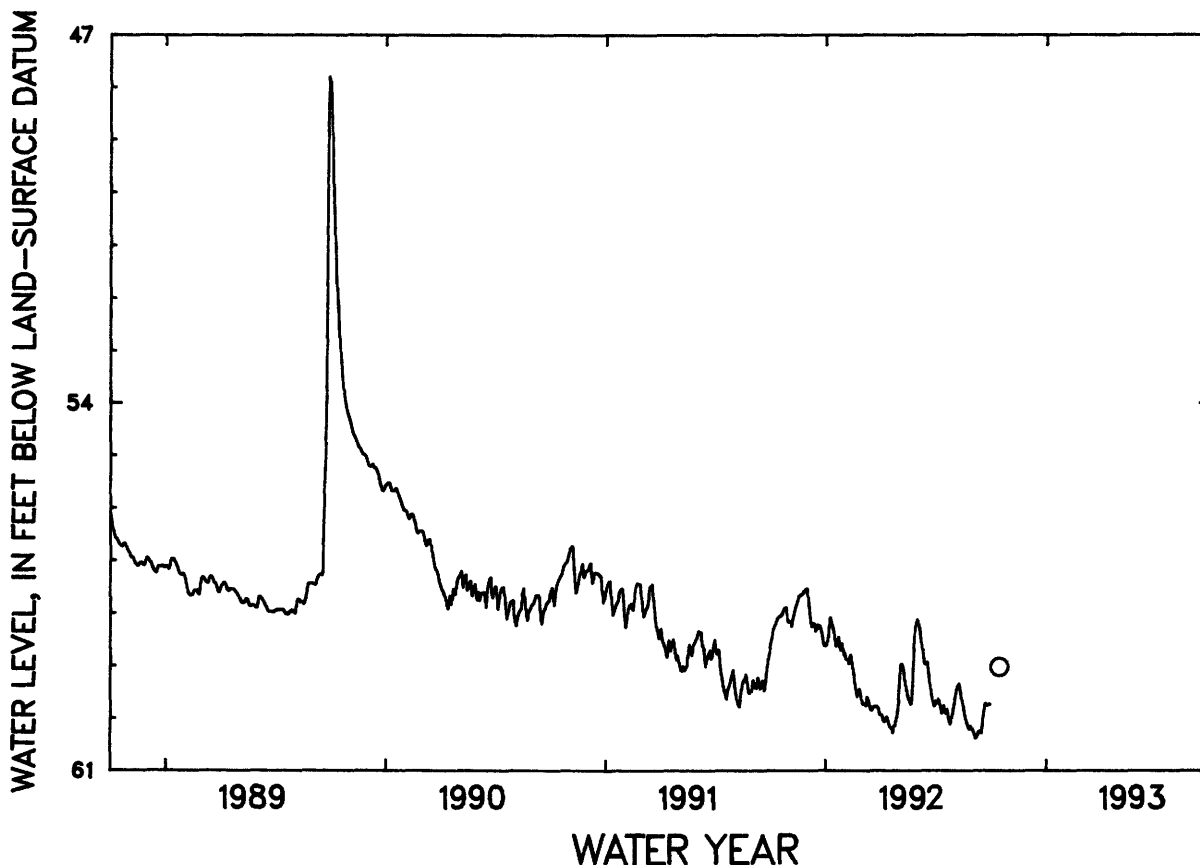
REMARKS.--Recording observation well.

PERIOD OF RECORD.--August 1964 to December 1969, discontinued. March 1982 to October 1992, discontinued.

EXTREMES FOR PERIOD OF RECORD.--Highest water level recorded, 41.12 ft (12.54 m) below land-surface datum, Aug. 15, 1969; lowest water level recorded, 63.15 ft (19.25 m) below land-surface datum, July 1, 1968.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993
INSTANTANEOUS OBSERVATIONS

| Date | Water level |
|---------|-------------|
| Oct. 15 | 59.02 |



GROUND-WATER LEVELS

551

ST. JOHN, U.S. VIRGIN ISLANDS

182044064454800. Local number, 7.

LOCATION.--Lat 18°20'44, long 64°45'48", Hydrologic Unit 21020001, 2.18 mi northeast of Cruz Bay plaza, 0.31 mi southwest of Peter Peak, and 0.48 mi northeast of Susannaberg on Ceter Line road. Owner: U.S. Virgin Islands Government, Name: DPW-4.

AQUIFER.--Louisenhoj Formation.

WELL CHARACTERISTICS.--Drilled public supply water-table well, diameter 6 in (0.15 m), cased 6 in (0.15 m). Sounded depth 60 ft (18.3 m).

INSTRUMENTATION.--Monthly measurement with chalked steel tape by USGS personnel.

DATUM.--Elevation of land-surface datum is about 640 ft (195 m) above mean sea level, from topographic map.

Measuring point: Top of 6 in (0.15 m) casing, 1.30 ft (0.40 m) above land-surface datum. Prior May 18, 1992, top of 6 in (0.15 m) casing, 0.60 ft (0.18 m) above land-surface datum.

REMARKS.--Observation well.

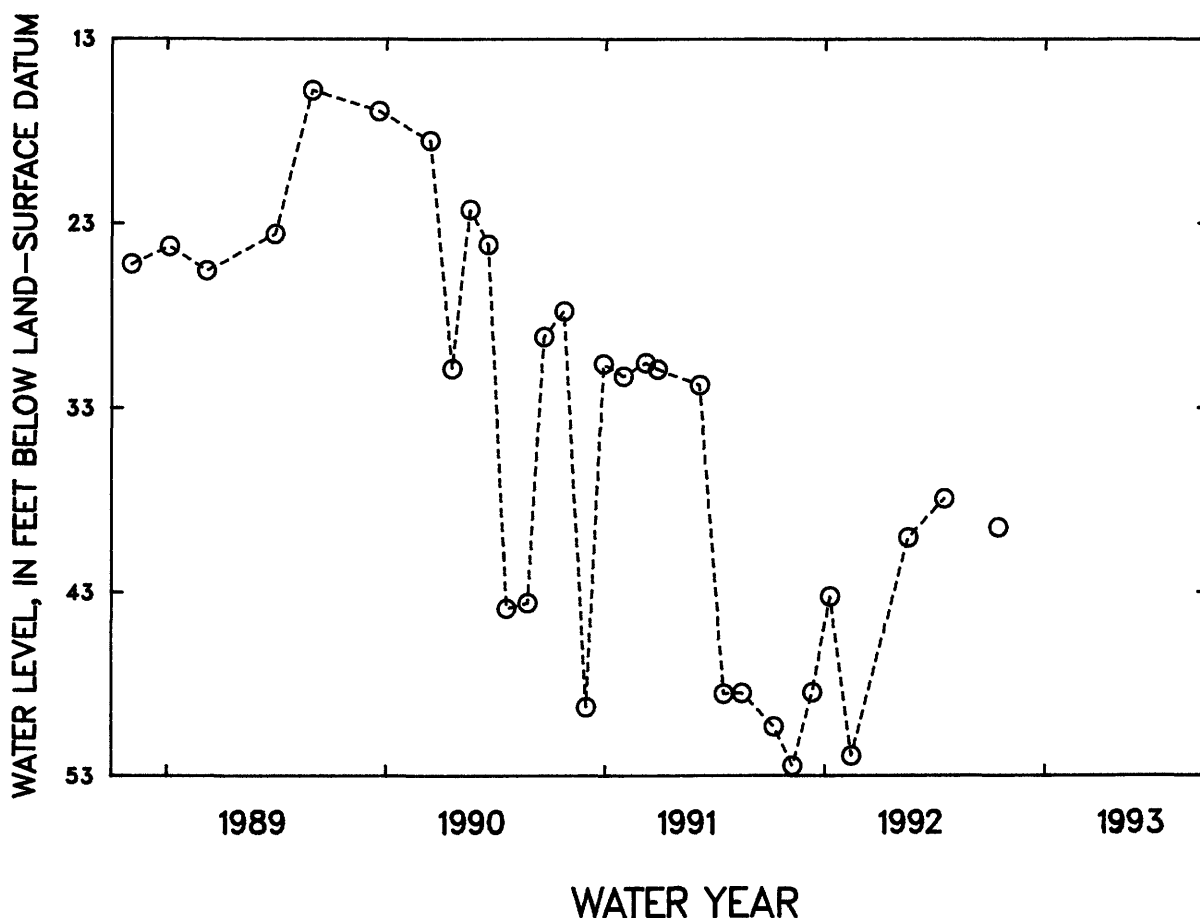
PERIOD OF RECORD.--September 1982 to October 1992, discontinued.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 14.48 ft (4.41 m) below land-surface datum, July 2, 1986; lowest water level measured, 52.45 ft (15.98 m) below land-surface datum, Nov. 8, 1991.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993
INSTANTANEOUS OBSERVATIONS

| Date | Water level |
|---------|-------------|
| Oct. 15 | 39.48 |

a Pumping.



GROUND-WATER LEVELS

ST. JOHN, U.S. VIRGIN ISLANDS

182044064454900. Local number, 8.

LOCATION.--Lat 18°20'44", long 64°45'49", Hydrologic Unit 21020001, 2.15 mi northeast of Cruz Bay plaza, 0.35 mi southwest of Peter Peak, and 0.45 mi northeast of Susannaberg on Center Line road. Owner: U.S. Virgin Islands Government, Name: DPW-3.

AQUIFER.--Louisenhoj Formation.

WELL CHARACTERISTICS.--Drilled public supply water-table well, diameter 6 in (0.15 m), cased 6 in (0.15 m). Sounded depth 110 ft (33.5 m).

INSTRUMENTATION.--Monthly measurement with chalked steel tape by USGS personnel.

DATUM.--Elevation of land-surface datum is about 620 ft (189 m) above mean sea level, from topographic map. Prior to this report, elevation used was 640 ft (195 m). Measuring point: Top of 6 in (0.15 m) casing, 1.80 ft (0.55 m) above land-surface datum.

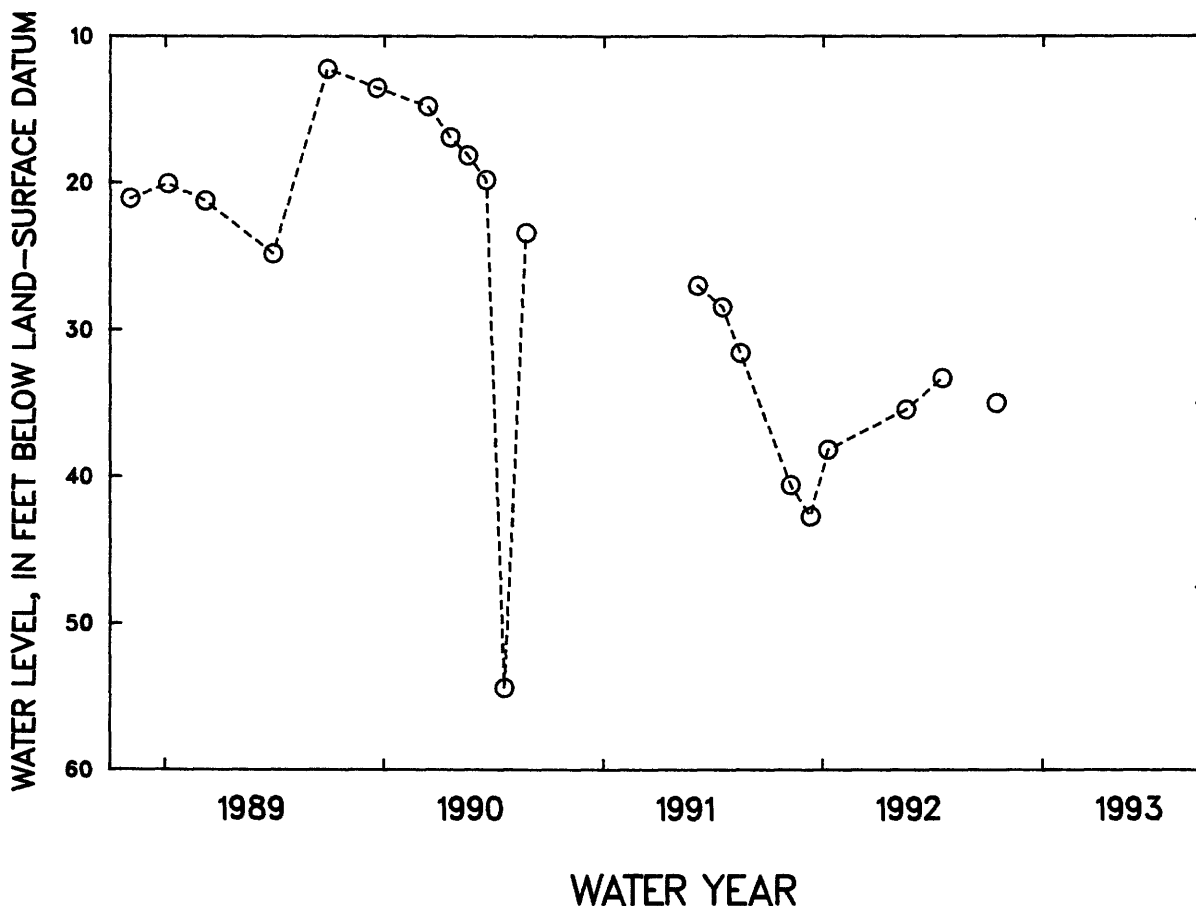
REMARKS.--Observation well.

PERIOD OF RECORD.--September 1982 to October 1992, discontinued.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 12.17ft (3.71 m) below land-surface datum, July 2, 1986; lowest water level measured, 69.58 ft (21.21 m) below land-surface datum, Feb. 27, 1986.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993
INSTANTANEOUS OBSERVATIONS

| Date | Water level |
|---------|-------------|
| Oct. 15 | 34.99 |



ST. JOHN, U.S. VIRGIN ISLANDS

182044064455000. Local number, 9.

LOCATION.--Lat 18°20'44", long 64°45'50", Hydrologic Unit 21020001, 2.05 mi northeast of Cruz Bay plaza, 0.41 mi southwest of Peter Peak, and 0.38 mi east of Susannaberg on Center Line road. Owner: U.S. Virgin Islands Government, Name: DPW-2.

AQUIFER.--Louisenhoj Formation.

WELL CHARACTERISTICS.--Drilled public supply water-table well, diameter 6 in (0.15 m), cased 6 in (0.15 m). Sounded depth 65 ft (19.8 m).

INSTRUMENTATION.--Monthly measurement with chalked steel tape by USGS personnel.

DATUM.--Elevation of land-surface datum is about 620 ft (189 m) above mean sea level, from topographic map. Prior to this report, elevation used was 640 ft (195 m). Measuring point: Top of 6 in (0.15 m) casing, 2.00 ft (0.61 m) above land-surface datum.

REMARKS.--Observation well.

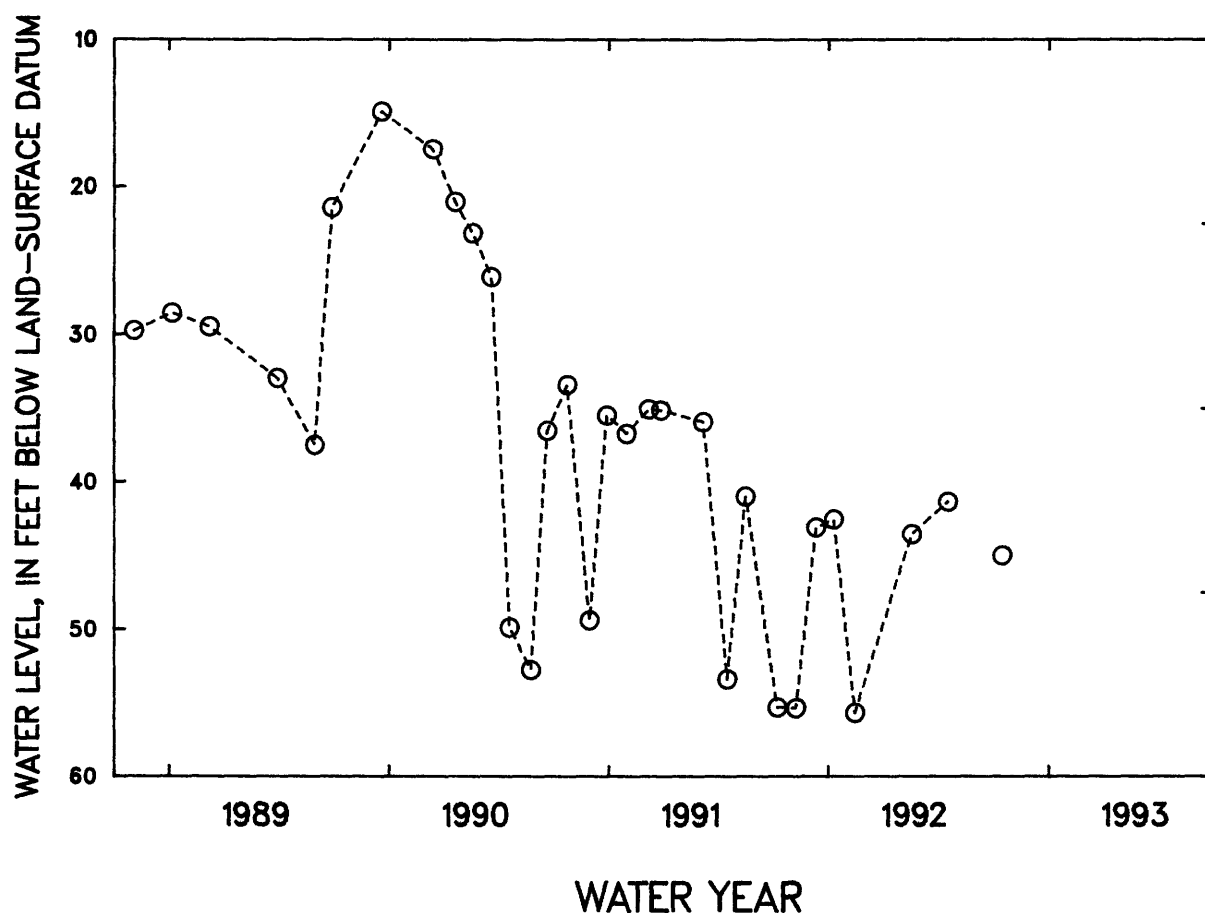
PERIOD OF RECORD.--September 1982 to October 1992, discontinued.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 14.93 ft (4.55 m) below land-surface datum, Dec. 19, 1989; lowest water level measured, 55.67 ft (16.9 m) below land-surface datum, Feb. 14, 1992.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993
INSTANTANEOUS OBSERVATIONS

| Date | Water level |
|---------|-------------|
| Oct. 15 | 42.98 |

a Pumping.



GROUND-WATER LEVELS
ST. JOHN, U.S. VIRGIN ISLANDS

182044064455200. Local number, 10.

LOCATION.--Lat 18°20'44", long 64°45'52", Hydrologic Unit 21020001, 2.00 mi northeast of Cruz Bay plaza, 0.46 mi southwest of Peter Peak, and 0.35 mi east of Susannaberg on Center Line road. Owner: U.S. Virgin Islands Government, Name: DFW-1.

AQUIFER.--Louisenhoj Formation.

WELL CHARACTERISTICS.--Drilled public supply water-table well, diameter 6 in (0.15 m), cased 6 in (0.15 m). Sounded depth 60 ft (18.3 m).

INSTRUMENTATION.--Monthly measurement with chalked steel tape by USGS personnel.

DATUM.--Elevation of land-surface datum about 610 ft (186 m) above mean sea level. Prior to this report, elevation used was 640 ft (195 m). Measuring point: Top of 6 in (0.15 m) casing, 2.00 ft (0.61 m) above land-surface datum.

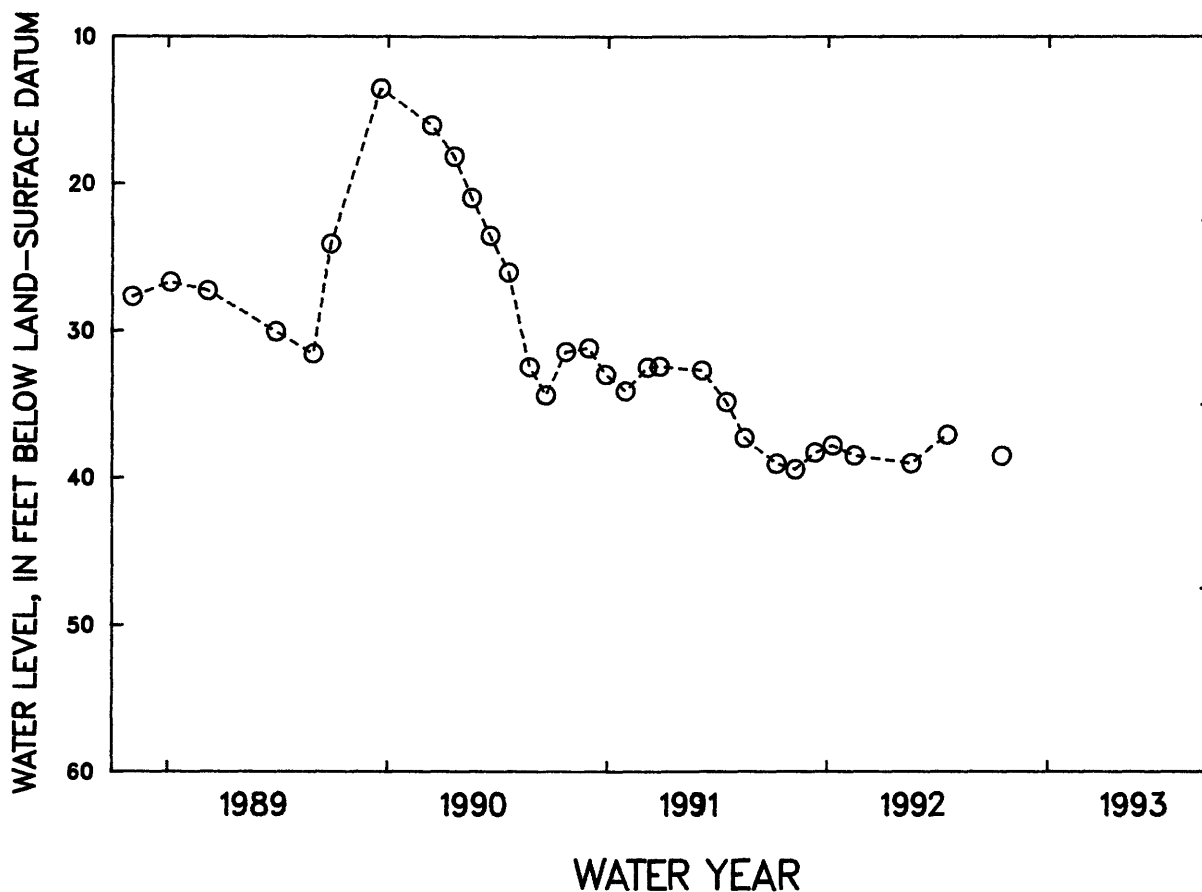
REMARKS.--Observation well. Water levels affected by pumping.

PERIOD OF RECORD.--September 1982 to October 1992, discontinued.

EXTREMES FOR PERIOD OF RECORD.--Highest water level measured, 13.54 ft (4.13 m) below land-surface datum, Dec. 19, 1989; lowest water level measured, 39.42 ft (12.01 m) below land-surface datum, Nov. 8, 1991.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993
INSTANTANEOUS OBSERVATIONS

| Date | Water level |
|---------|-------------|
| Oct. 15 | 38.50 |



GROUND-WATER LEVELS

ST. JOHN, U.S. VIRGIN ISLANDS

181956064464500. Local number, 11.

LOCATION.--Lat 18°19'56", long 64°46'45", Hydrologic Unit 21020001, 1.05 mi southeast of Cruz Bay plaza, 0.25 mi southeast of Bethany Church, and 0.48 mi southeast of Margaret Hill. Owner: U.S. Virgin Islands Government, Name: Guinea Gut Well.

AQUIFER.--Louisenhoj Formation (Donnelly, 1959).

WELL CHARACTERISTICS.--Drilled unused water-table well, diameter 6 in (0.15 m), cased 6 in (0.15 m). Depth 85 ft (25.9 m).

INSTRUMENTATION.--Digital water level recorder--60-minute punch.

DATUM.--Elevation of land-surface datum is about 280 ft (85.36 m) above mean sea level, from topographic map.

Measuring point: Bottom of 0.5 in (0.01 m) hole at 6 in (0.15 m) casing, 1.50 ft (0.46 m) above land-surface datum. Prior to June 28, 1983, top of 6 in (0.15 m) casing, 1.80 ft (0.55 m) above land-surface datum.

REMARKS.--Recording observation well.

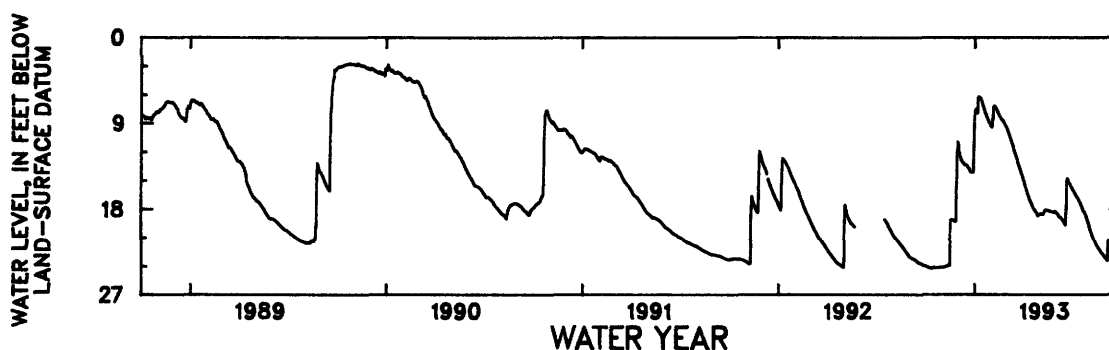
PERIOD OF RECORD.--March 1982 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level recorded, 2.71 ft (0.79 m) below land-surface datum, Jan. 3, 1990; lowest water level recorded, 25.25 ft (7.70 m) below land-surface datum, Oct. 2, 1985.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993
INSTANTANEOUS OBSERVATION AT 1200

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|------|-------|-------|-------|------|------|-------|-------|-------|-------|-------|-------|-------|
| 1 | 23.99 | 24.11 | 11.20 | 7.70 | 9.43 | 9.57 | 14.88 | 18.59 | 18.33 | 15.89 | 19.59 | 23.12 |
| 2 | 24.00 | 24.10 | 11.73 | 7.52 | 9.18 | 9.69 | 15.07 | 18.53 | 18.40 | 15.99 | 19.83 | 23.19 |
| 3 | 24.03 | 24.10 | 12.13 | 7.54 | 8.56 | 9.88 | 15.24 | 18.53 | 18.45 | 16.07 | 20.03 | 23.26 |
| 4 | 24.06 | 24.09 | 12.41 | 7.76 | 7.41 | 10.04 | 15.41 | 18.52 | 18.51 | 16.18 | 20.20 | 23.34 |
| 5 | 24.10 | 24.07 | 12.61 | 7.94 | 7.17 | 10.20 | 15.59 | 18.54 | 18.58 | 16.26 | 20.37 | 23.41 |
| 6 | 24.14 | 24.05 | 12.78 | 6.76 | 7.22 | 10.36 | 15.78 | 18.51 | 18.67 | 16.37 | 20.54 | 21.30 |
| 7 | 24.17 | 24.03 | 12.90 | 6.22 | 7.29 | 10.55 | 15.97 | 18.50 | 18.78 | 16.49 | 20.69 | 21.29 |
| 8 | 24.19 | 24.00 | 13.02 | 6.21 | 7.38 | 10.71 | 16.14 | 18.53 | 18.84 | 16.55 | 20.84 | 21.59 |
| 9 | 24.19 | 23.98 | 13.10 | 6.26 | 7.49 | 10.86 | 16.33 | 18.51 | 18.87 | 16.65 | 20.98 | 21.81 |
| 10 | 24.20 | 23.95 | 13.17 | 6.33 | 7.62 | 11.05 | 16.48 | 18.36 | 18.89 | 16.75 | 21.11 | 21.97 |
| 11 | 24.20 | 23.94 | 13.20 | 6.39 | 7.74 | 11.22 | 16.66 | 18.26 | 18.92 | 16.83 | 21.25 | 22.08 |
| 12 | 24.21 | 23.92 | 13.28 | 6.49 | 7.85 | 11.41 | 16.84 | 18.13 | 19.00 | 16.90 | 21.37 | 22.17 |
| 13 | 24.21 | 23.91 | 13.37 | 6.60 | 7.99 | 11.61 | 16.98 | 18.11 | 19.08 | 17.04 | 21.50 | 22.25 |
| 14 | 24.21 | 23.90 | 13.34 | 6.81 | 8.12 | 11.82 | 17.13 | 18.10 | 19.16 | 17.15 | 21.62 | 22.32 |
| 15 | 24.15 | 23.88 | 13.35 | 7.06 | 8.25 | 12.02 | 17.25 | 18.09 | 19.23 | 17.24 | 21.74 | 22.39 |
| 16 | 24.15 | 20.79 | 13.37 | 7.26 | 8.34 | 12.16 | 17.37 | 18.11 | 19.34 | 17.36 | 21.82 | 22.47 |
| 17 | 24.15 | 19.06 | 13.41 | 7.47 | 8.42 | 12.29 | 17.47 | 18.12 | 19.44 | 17.50 | 21.90 | 22.52 |
| 18 | 24.15 | 19.10 | 13.51 | 7.65 | 8.51 | 12.48 | 17.59 | 18.14 | 19.56 | 17.65 | 21.98 | 22.55 |
| 19 | 24.15 | 19.09 | 13.63 | 7.82 | 8.61 | 12.64 | 17.74 | 18.17 | 19.65 | 17.78 | 22.07 | 22.58 |
| 20 | 24.15 | 19.10 | 13.70 | 7.95 | 8.71 | 12.85 | 17.86 | 18.22 | 18.00 | 17.91 | 22.16 | 22.62 |
| 21 | 24.15 | 19.13 | 13.80 | 8.11 | 8.73 | 13.04 | 17.99 | 18.23 | 15.03 | 18.04 | 22.26 | 22.66 |
| 22 | 24.15 | 19.14 | 13.88 | 8.27 | 8.80 | 13.25 | 18.07 | 18.24 | 14.77 | 18.20 | 22.36 | 22.69 |
| 23 | 24.15 | 19.13 | 14.03 | 8.39 | 8.89 | 13.43 | 18.14 | 18.26 | 14.92 | 18.25 | 22.45 | 22.72 |
| 24 | 24.14 | 19.23 | 14.11 | 8.60 | 9.01 | 13.59 | 18.23 | 18.26 | 15.06 | 18.33 | 22.53 | 22.75 |
| 25 | 24.14 | 19.25 | 14.15 | 8.71 | 9.13 | 13.74 | 18.31 | 18.27 | 15.18 | 18.46 | 22.59 | 22.77 |
| 26 | 24.14 | 19.26 | 14.18 | 8.84 | 9.25 | 13.91 | 18.39 | 18.30 | 15.30 | 18.57 | 22.67 | 22.79 |
| 27 | 24.14 | 19.22 | 14.16 | 8.95 | 9.36 | 14.07 | 18.50 | 18.33 | 15.41 | 18.73 | 22.75 | 22.81 |
| 28 | 24.13 | 14.72 | 14.15 | 9.05 | 9.47 | 14.24 | 18.62 | 18.31 | 15.56 | 18.88 | 22.83 | 22.83 |
| 29 | 24.13 | 11.87 | 14.14 | 9.15 | --- | 14.39 | 18.68 | 18.30 | 15.68 | 19.06 | 22.90 | 22.86 |
| 30 | 24.13 | 10.92 | 10.95 | 9.26 | --- | 14.50 | 18.65 | 18.27 | 15.78 | 19.20 | 22.96 | 22.87 |
| 31 | 24.13 | --- | 8.40 | 9.35 | --- | 14.67 | --- | 18.29 | --- | 19.36 | 23.05 | --- |
| MEAN | 24.14 | 20.97 | 13.07 | 7.69 | 8.35 | 12.14 | 17.11 | 18.31 | 17.68 | 17.47 | 21.64 | 22.53 |

WTR YR 1993 MEAN 16.80 HIGHEST 6.16 JAN. 8, 1993 LOWEST 24.21 OCT. 11-15, 1992



GROUND-WATER LEVELS

ST. JOHN, U.S. VIRGIN ISLANDS

182110064430000. Local number, 12.

LOCATION.--Lat 18°21'10", long 64°43'00", Hydrologic Unit 21020001, 0.20 mi northwest of Coral Bay Church, 1.05 mi southeast of King Hill, and 0.50 mi west of road 10. Owner: U.S. Virgin Islands Water and Power Authority, Name: WAPA, Coral Bay, VIEO-2.

AQUIFER.--Fractured, volcanic rock, water-table aquifer.

WELL CHARACTERISTICS.--Drilled observation water-table well, diameter 7 in (0.18 m), 0-70 ft (0-21.3 m), cased 4 in (0.10 m), 0-66 ft (0-20.1 m), screened 26-66 ft (7.26-20.1 m). Depth 66 ft (20.1 m).

INSTRUMENTATION.--Digital water level recorder--60-minute punch.

DATUM.--Elevation of land-surface datum is about 30 ft (9.14 m) above mean sea level, from topographic map. Measuring point: Top of shelter floor, 3.10 ft (0.94 m) above land-surface datum.

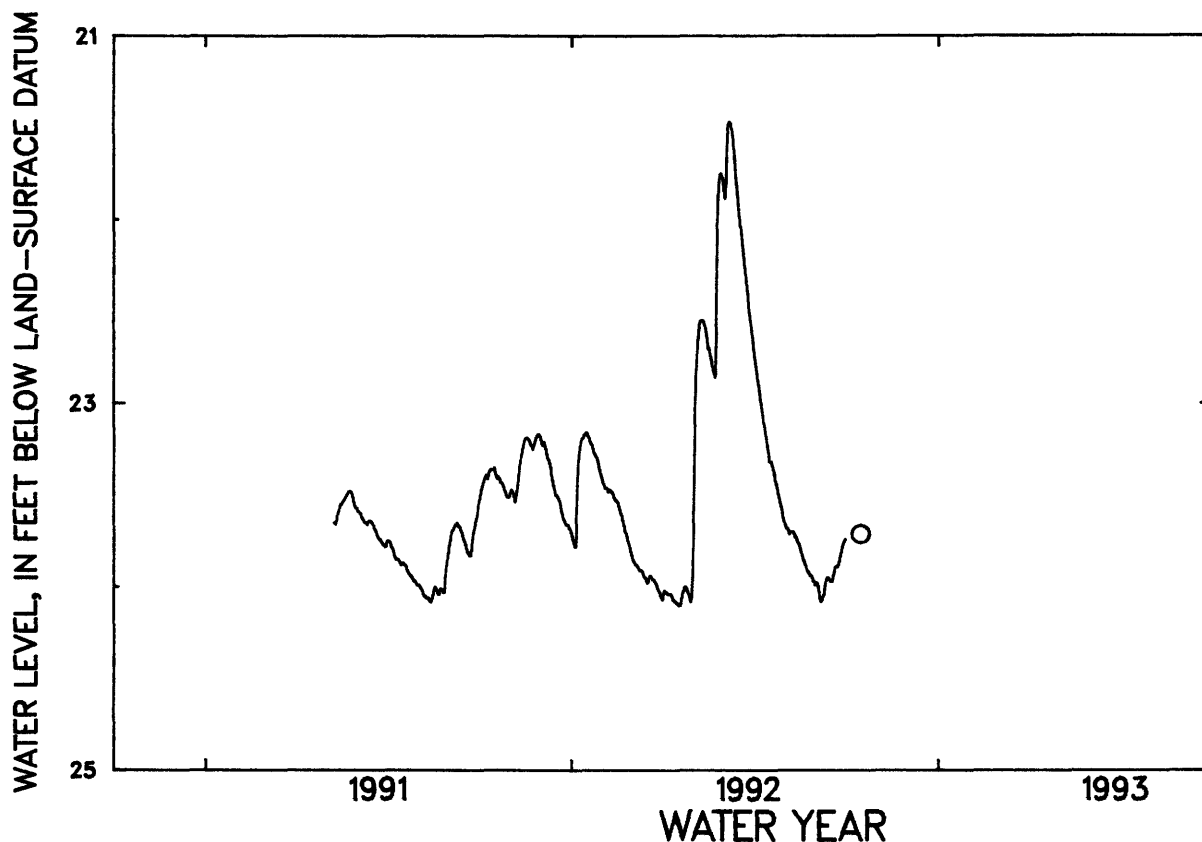
REMARKS.--Recording observation well. Drilled on February 1991.

PERIOD OF RECORD.--May 1991 to October 1992, discontinued.

EXTREMES FOR PERIOD OF RECORD.--Highest water level recorded, 21.47 ft (6.54 m) below land-surface datum, June 5-8, 1992; lowest water level recorded, 24.11 ft (7.35 m) below land-surface datum, Apr. 18-19, 1992.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993
INSTANTANEOUS OBSERVATIONS

| Date | Water level |
|---------|-------------|
| Oct. 15 | 23.71 |



GROUND-WATER LEVELS

ST. JOHN, U.S. VIRGIN ISLANDS

181950064422300. Local number, 13.

LOCATION.--Lat 18°19'50", long 64°42'23", Hydrologic Unit 21020001, 1.47 mi southeast of Coral Bay Church, 0.68 mi northeast of Minna Hill, and 0.10 mi west of Hwy 107 at Calabash Boom. Owner: U.S. Virgin Islands Water and Power Authority, Name: WAPA, Calabash Boom, VIEO-3.

AQUIFER.--Fractured, volcanic rock, water-table aquifer.

WELL CHARACTERISTICS.--Drilled observation water-table well, diameter 7 in (0.18 m), 0-110 ft (0-33.5 m), cased 4 in (0.10 m), 0-10 ft (0-3.0 m), screened 50-110 ft (15.2-33.5 m). Depth 110 ft (33.5 m).

INSTRUMENTATION.--Digital water level recorder--60-minute punch.

DATUM.--Elevation of land-surface datum is about 55 ft (16.8 m) above mean sea level, from topographic map. Measuring point: Top of shelter floor, 2.80 ft (0.85 m) above land-surface datum.

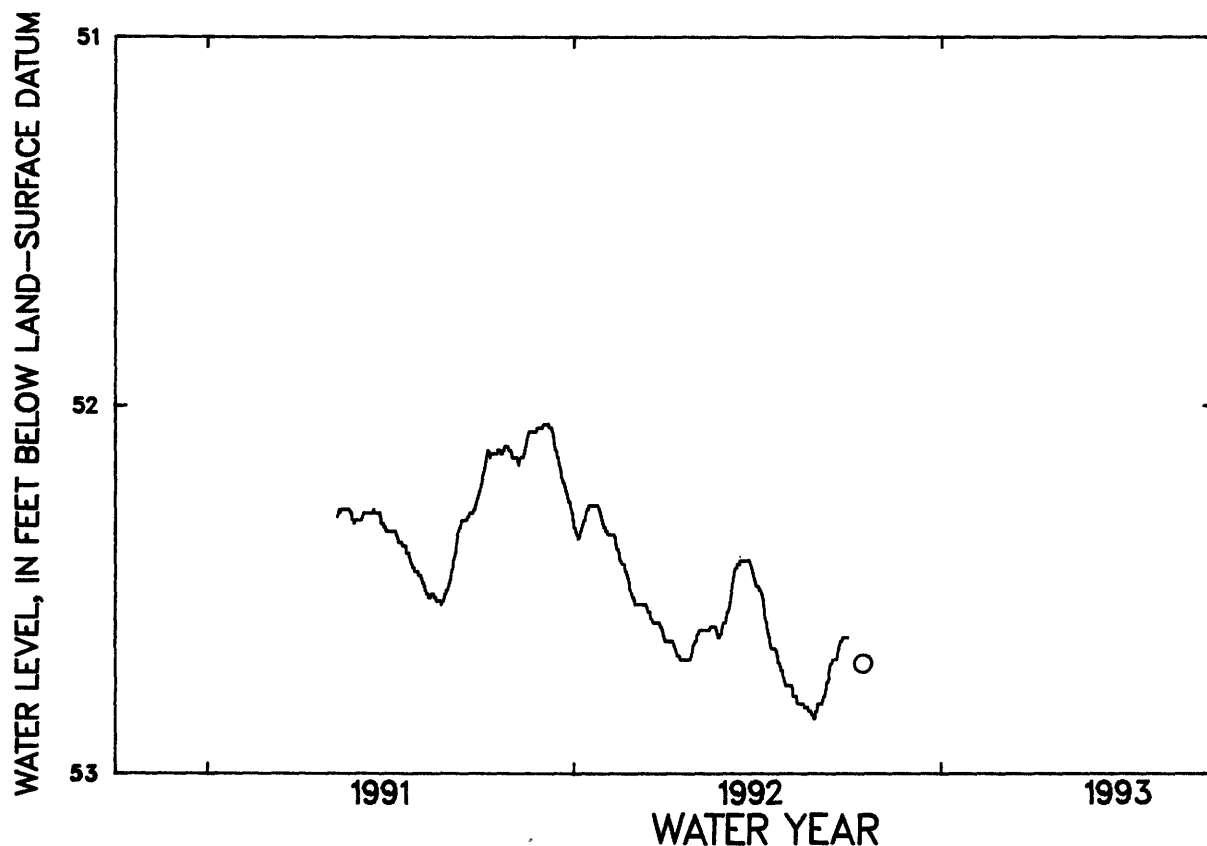
REMARKS.--Recording Observation well. Drilled on February 1991.

PERIOD OF RECORD.--May 1991 to October 1992, discontinued.

EXTREMES FOR PERIOD OF RECORD.--Highest water level 52.04 ft (15.9 m) below land-surface datum, Dec. 3-5, 1991; lowest water level recorded, 52.85 ft (16.1 m) below land-surface datum, Aug. 27-28, 1992.

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993
INSTANTANEOUS OBSERVATIONS

| Date | Water level |
|---------|-------------|
| Oct. 15 | 52.70 |



GROUND-WATER LEVELS

ST. JOHN, U.S. VIRGIN ISLANDS

182048064430400. Local number, 14.

LOCATION.--Lat 18°20'48", long 64°3'04", Hydrologic Unit 21020001, 0.27 mi southwest of Coral Bay Church, 1.05 mi southeast of King Hill, and 0.08 mi west of Hwy 107 in Carolina area. Owner: U.S. Virgin Islands Water and Power Authority, Name: WAPA, Coral Bay, VIEO-4.

AQUIFER.--Fractured, volcanic rock, water-table aquifer.

WELL CHARACTERISTICS.--Drilled observation water-table well, diameter 7 in (0.18 m), 0-50 ft (0-15.2 m), cased 6 in (0.15 m), 0-50 ft (0-15.2 m), screened 20-50 ft (6.09-15.2 m). Depth 50 ft (15.2 m).

INSTRUMENTATION.--Digital water level recorder--60-minute punch.

DATUM.--Elevation of land-surface datum is about 13 ft (3.96 m) above mean sea level, from topographic map.

Measuring point: Top of shelter floor, 3.10 ft (0.94 m) above land-surface datum.

REMARKS.--Recording observation well. Drilled on February 1991. Water levels affected by nearly pumping well.

Water levels affected by aquifer test during May 1993.

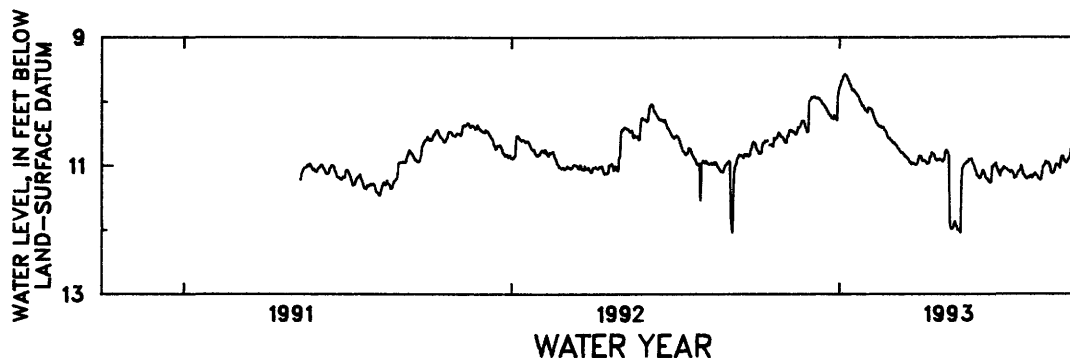
PERIOD OF RECORD.--May 1991 to current year.

EXTREMES FOR PERIOD OF RECORD.--Highest water level recorded, 9.57 ft (2.92 m) below land-surface datum, Jan. 6-7, 1993; lowest water level recorded, 12.06 ft (3.68 m) below land-surface datum, Sept. 4, 1992

WATER LEVEL, IN FEET BELOW LAND-SURFACE DATUM, WATER YEAR OCTOBER 1992 TO SEPTEMBER 1993
INSTANTANEOUS OBSERVATION AT 1200

| DAY | OCT | NOV | DEC | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP |
|------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| 1 | 10.76 | 10.63 | 9.93 | 9.77 | 10.17 | 10.63 | 10.85 | 10.77 | 11.06 | 11.09 | 11.19 | 10.99 |
| 2 | 10.77 | 10.64 | 9.93 | 9.73 | 10.09 | 10.65 | 10.86 | 10.81 | 11.09 | 11.05 | 11.16 | 11.00 |
| 3 | 10.81 | 10.63 | 9.93 | 9.68 | 10.10 | 10.64 | 10.91 | 10.86 | 11.15 | 11.02 | 11.16 | 11.00 |
| 4 | 10.79 | 10.53 | 9.92 | 9.66 | 10.11 | 10.67 | 10.93 | 11.86 | 11.16 | 11.04 | 11.19 | 11.04 |
| 5 | 10.81 | 10.53 | 9.94 | 9.60 | 10.11 | 10.68 | 10.92 | 11.96 | 11.18 | 11.05 | 11.16 | 10.89 |
| 6 | 10.79 | 10.45 | 9.94 | 9.58 | 10.13 | 10.70 | 10.92 | 11.99 | 11.20 | 11.05 | 11.14 | 10.86 |
| 7 | 10.68 | 10.44 | 9.95 | 9.57 | 10.17 | 10.73 | 10.94 | 11.98 | 11.19 | 11.07 | 11.12 | 10.86 |
| 8 | 10.64 | 10.46 | 9.94 | 9.59 | 10.22 | 10.74 | 10.96 | 11.95 | 11.14 | 11.08 | 11.14 | 10.90 |
| 9 | 10.65 | 10.45 | 9.95 | 9.60 | 10.26 | 10.77 | 10.97 | 11.90 | 11.10 | 11.09 | 11.16 | 10.93 |
| 10 | 10.61 | 10.47 | 9.97 | 9.65 | 10.30 | 10.79 | 10.96 | 11.87 | 11.07 | 11.11 | 11.17 | 10.95 |
| 11 | 10.62 | 10.47 | 9.98 | 9.67 | 10.33 | 10.80 | 10.95 | 11.93 | 11.10 | 11.09 | 11.21 | 10.96 |
| 12 | 10.62 | 10.49 | 10.01 | 9.72 | 10.34 | 10.80 | 10.86 | 11.95 | 11.14 | 11.08 | 11.21 | 10.94 |
| 13 | 10.61 | 10.51 | 10.04 | 9.74 | 10.37 | 10.82 | 10.86 | 12.00 | 11.18 | 11.11 | 11.23 | 10.91 |
| 14 | --- | 10.50 | 10.04 | 9.78 | 10.38 | 10.83 | 10.79 | 11.99 | 11.21 | 11.14 | 11.21 | 10.89 |
| 15 | 10.68 | 10.44 | 10.06 | 9.82 | 10.39 | 10.86 | 10.81 | 12.02 | 11.21 | 11.20 | 11.11 | 10.86 |
| 16 | 10.67 | 10.40 | 10.09 | 9.81 | 10.38 | 10.86 | 10.82 | 12.04 | 11.24 | 11.16 | 11.02 | 10.75 |
| 17 | 10.67 | 10.40 | 10.11 | 9.83 | 10.41 | 10.88 | 10.85 | 11.29 | 11.26 | 11.18 | 11.00 | 10.71 |
| 18 | 10.69 | 10.38 | 10.14 | 9.85 | 10.40 | 10.89 | 10.90 | 11.04 | 11.27 | 11.14 | 10.98 | 10.72 |
| 19 | 10.70 | 10.34 | 10.16 | 9.86 | 10.40 | 10.91 | 10.91 | 11.02 | 11.25 | 11.10 | 10.94 | 10.73 |
| 20 | 10.56 | 10.30 | 10.20 | 9.88 | 10.44 | 10.94 | 10.92 | 10.98 | 11.01 | 11.09 | 10.95 | 10.75 |
| 21 | 10.59 | 10.31 | 10.22 | 9.91 | 10.45 | 10.95 | 10.91 | 10.97 | 11.02 | 11.08 | 10.97 | 10.78 |
| 22 | 10.57 | 10.30 | 10.21 | 9.92 | 10.48 | 10.98 | 10.91 | 10.96 | 10.99 | 11.04 | 10.96 | 10.83 |
| 23 | 10.56 | 10.35 | 10.26 | 9.96 | 10.52 | 10.96 | 10.90 | 10.94 | 10.99 | 11.00 | 10.99 | 10.86 |
| 24 | 10.53 | 10.40 | 10.26 | 10.00 | 10.56 | 10.96 | 10.91 | 10.94 | 10.96 | 11.07 | 11.02 | 10.88 |
| 25 | 10.48 | 10.44 | 10.27 | 10.01 | 10.57 | 10.97 | 10.92 | 10.90 | 11.02 | 11.14 | 11.11 | 10.79 |
| 26 | 10.50 | 10.48 | 10.21 | 10.06 | 10.57 | 10.98 | 10.94 | 10.91 | 11.06 | 11.15 | 11.12 | 10.78 |
| 27 | 10.53 | 10.46 | 10.23 | 10.06 | 10.60 | 10.99 | 10.91 | 10.90 | 11.10 | 11.18 | 11.12 | 10.78 |
| 28 | 10.55 | 9.98 | 10.27 | 10.09 | 10.61 | 10.98 | 10.90 | 10.89 | 11.13 | 11.20 | 11.10 | 10.77 |
| 29 | 10.55 | 9.98 | 10.29 | 10.12 | --- | 10.96 | 10.77 | 10.94 | 11.16 | 11.21 | 11.07 | 10.75 |
| 30 | 10.56 | 9.96 | 9.92 | 10.14 | --- | 10.90 | 10.76 | 10.97 | 11.07 | 11.19 | 11.00 | 10.69 |
| 31 | 10.59 | --- | 9.83 | 10.14 | --- | 10.85 | --- | 11.01 | --- | 11.18 | 10.98 | --- |
| MEAN | 10.64 | 10.40 | 10.07 | 9.83 | 10.35 | 10.84 | 10.89 | 11.37 | 11.12 | 11.11 | 11.09 | 10.85 |

WTR YR 1993 MEAN 10.72 HIGHEST 9.57 JAN. 6-7, 1993 LOWEST 12.05 MAY 16, 1993



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| Tons per day, definition of 40 | Guajataca basin, Río Well 165 - Mateo Pérez, Bo. Saltos 454 Well 202 - Carmelo Barreto-García 455 |
| Toronja at El Verde, Quebrada 311 | Guanajibo basin, Río Well 143 - Vivoni, Hacienda Amistad 494 Well CR-TW-1 - Bajura #1 495 Well CR-TW-2A - Bajura #2A 496 Well CR-TW-2B - Bajura #2B 497 Well CR-TW-2C - Bajura #2C 498 Well CR-TW-3 - Bajura #3 499 Well CR-TW-4 - Bajura #4 500 Well CR-TW-5 - Bajura #5 501 |
| Total, definition of 40 | |
| Total coliform bacteria, definition of 31 | |
| Total discharge, definition of 40 | |
| Total organism count, definition of 35 | |
| Total-recoverable, definition of 40 | |
| Total sediment discharge, definition of 38 | |
| Total-sediment load, definition of 38 | |
| Tres Pueblos Sinkhole, Río Camuy at 56 | |
| Tritium network, definition of 40 | |
| Trujillo Alto, Lago Loíza No. 7 near dam near 445-451 | |
| Trujillo Alto, Río Grande de Loíza below 305,306 | |
| Turabo above Borinquen, Río 216-222 | |
| Turpentine Run at Mount Zion, St. Thomas, VI 511 | |
| | |
| U | |
| Utuado, Lago Dos Bocas No. 1 near dam near 445-451 | |
| Utuado, Lago Dos Bocas No. 3 at west branch near 442-444 | |
| Utuado, Río Grande de Arecibo near 64,65 | |
| Utuado, Río Tanamá near 73-81 | |

CONVERSION FACTORS AND VERTICAL DATUM

| Multiply | By | To obtain |
|--|------------------------|----------------------------|
| <i>Length</i> | | |
| inch (in.) | 2.54×10^1 | millimeter |
| | 2.54×10^{-2} | meter |
| foot (ft) | 3.048×10^{-1} | meter |
| mile (mi) | 1.609×10^0 | kilometer |
| <i>Area</i> | | |
| acre | 4.047×10^3 | square meter |
| | 4.047×10^{-1} | square hectometer |
| | 4.047×10^{-3} | square kilometer |
| square mile (mi ²) | 2.590×10^0 | square kilometer |
| <i>Volume</i> | | |
| gallon (gal) | 3.785×10^0 | liter |
| | 3.785×10^0 | cubic decimeter |
| | 3.785×10^{-3} | cubic meter |
| million gallons (Mgal) | 3.785×10^3 | cubic meter |
| | 3.785×10^{-3} | cubic hectometer |
| cubic foot (ft ³) | 2.832×10^1 | cubic decimeter |
| | 2.832×10^{-2} | cubic meter |
| cubic-foot-per-second day [(ft ³ /s) d] | 2.447×10^3 | cubic meter |
| | 2.447×10^{-3} | cubic hectometer |
| acre-foot (acre-ft) | 1.233×10^3 | cubic meter |
| | 1.233×10^{-3} | cubic hectometer |
| | 1.233×10^{-6} | cubic kilometer |
| <i>Flow</i> | | |
| cubic foot per second (ft ³ /s) | 2.832×10^1 | liter per second |
| | 2.832×10^1 | cubic decimeter per second |
| | 2.832×10^{-2} | cubic meter per second |
| gallon per minute (gal/min) | 6.309×10^{-2} | liter per second |
| | 6.309×10^{-2} | cubic decimeter per second |
| | 6.309×10^{-5} | cubic meter per second |
| million gallons per day (Mgal/d) | 4.381×10^1 | cubic decimeter per second |
| | 4.381×10^{-2} | cubic meter per second |
| <i>Mass</i> | | |
| ton (short) | 9.072×10^{-1} | megagram or metric ton |

Sea level: In this report “sea level” refers to the National Geodetic Vertical Datum of 1929 (NGVD of 1929)—a geodetic datum derived from a general adjustment for the first-order level nets of both the United States and Canada, formerly called Sea Level Datum of 1929.

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